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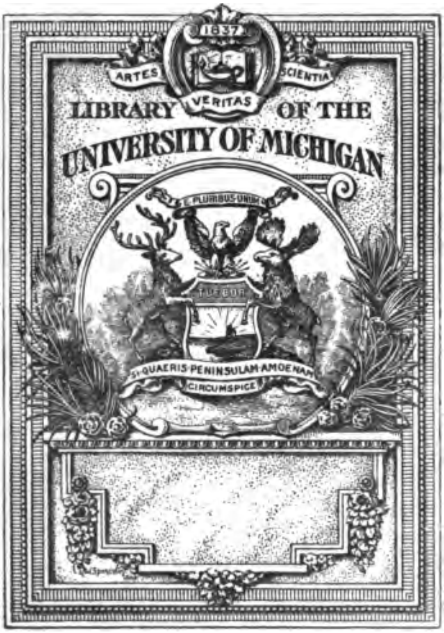
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# A GENERAL
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# OF
# HUSBANDRY and GARDENING;

Containing a New
*SYSTEM of VEGETATION:*
Illuſtrated with many
OBSERVATIONS and EXPERIMENTS.
In Two VOLUMES.
Formerly publiſh'd Monthly, and now methodiz'd and digeſted under proper HEADS, with
ADDITIONS and great ALTERATIONS.

In FOUR PARTS.

Part I. Concerning the Improvement of Land, by fertilizing bad Soils. Of ſtocking of Farms with Cattle, *Poultry, Fiſh, Bees, Graſſes,* Grain, Cyder, *&c.*

Part II. Inſtructions to a Gardiner, wherein is demonſtrated the Circulation of Sap, the Generation of Plants, the Nature of Soil, Air and Situation. Of the Profits ariſing from planting and raiſing Timber.

Part III. Of the Management of Fruit Trees, with particular Obſervations relating to Graffing, Inarching and Inoculating.

Part IV. Remarks on the Diſpoſition of Gardens in general. Of the Method of managing Exotick Plants and Flowers, and naturalizing them to our Climate; with an Account of Stoves, and artificial Heats.

ichard
Adorn'd with CUTS.

---

By *R.* *BRADLEY*, Profeſſor of *Botany* in the
Univerſity of *Cambridge*, and F.R.S.

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VOL. II.

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*LONDON:*

Printed for T. WOODWARD, at the *Half-Moon* over
againſt St. *Dunſtan*'s Church in *Fleetſtreet*, and
J. PEELE at *Locke*'s Head in *Pater-noſter Row*.
MDCCXXVI.

TO THE

RIGHT HONOURABLE

ROBERT WALPOLE, *Eſq;*

*Firſt Lord-Commiſſioner of the* Treaſury, *Chancellor of the* Exchequer, *&c.*

*SIR,*

THE Reaſons, which encourage me to hope for Your Protection of the following Papers, are founded upon Your generous Character, which declares You the

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Patron of every Thing which tends to the Advantage or Improvement of Your Country; and it is no ſmall Happineſs, that after great Expence and Study, I have an Opportunity of preſenting a Gentleman of Your polite Taſte with ſome new Diſcoveries, which will gain Time in raiſing Plantations, and fill our Gardens with Fruit at every Seaſon of the Year; which, I hope, will afford You ſome Amuſement in Your leiſure Minutes, eſpecially ſince Your Genius has led You to purchaſe one of the fineſt Collections of Plants in the Kingdom.

This, Sir, is Engagement enough for me to offer the following Sheets to Your Peruſal, and that I may have the Honour of declaring to the World, that I am, with the greateſt Reſpect,

*SIR,*

*Your moſt obedient*

*humble Servant,*

R. Bradley.

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# A General TREATISE OF *Husbandry* and *Gardening.*

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### INTRODUCTION.

### *Concerning the native Places of the ſeveral Tribes of Fruit Trees: With an Etymological Account of their Names and of the Latitudes of the Countries which each kind of Fruit was brought from: With Directions for Ripening of Winter Fruits; and of the Culture of Fig Trees.*

I Shall begin with Cherries, which were not known in *Europe*, till *Lucullus* had overcome *Mithridates*, King of *Pontus*, *Anno Romæ* 683. At which time *Lucullus* firſt brought them from *Pontus* into *Italy*; but they were not till an hundred Years after, brought into *Britain*; as the ingenious Sir *William Temple* obſerves in his Writings. This *Pontus* is a Province in *Aſia Minor*, between *Bithynia* and *Paphlagonia*, thus called becauſe it lies along the *Euxine* Sea, whoſe Capital City was *Heraclea*. The late Mr. *Vernon*, a Perſon of extraordinary Curioſity in theſe Matters, has given an Account in a Letter which he ſent from that Part of the World, that near the *Black Sea*, there was a Town named *Chereſium* or *Chireſium*, about which Cherry Trees grew wild, and he ſuppoſes they might take their Name from thence; its Latitude is about forty three Degrees *North*, which is about eight Degrees and an half more South than *London*, where Cherries grow very well without Shelter; or even as far as *Edinburgh* they are cultivated with good Succeſs. Now the Latitude of *Edinburgh* is fifty ſix Degrees five Minutes; ſo that here is one Inſtance of Plants which will bear with Change of Climate about thirteen Degrees.

In the next Place it is obſerved by Sir *William Temple*, that after the Conqueſt of *Africk*, *Greece*, the *Leſſer Aſia* and *Syria*, were brought into *Italy* all the ſorts of *Mala*, which we interpret Apples, and might ſignifie no more at firſt.

The Abricots coming from *Epirus* were called *Mala Epirotica*. Their Peaches from *Perſia*, *Mala Perſica*. Citrons from *Media*, *Mala Medica*. Pomgranates from *Carthage*, *Mala Punica*. Quinces from a little Iſland in the *Grecian* Sea, *Mala Cathonea*. And their beſt Pears were brought from *Alexandria*, *Numidia*, *Greece* and *Numantia*, as appears by their ſeveral Appellations. Their Plumbs from *Armenia*, *Syria*, but chiefly from *Damaſcus*.

We are informed by the ſame great Author, that the Fruits of *Rome*, in about an hundred Years, came from Countries as far as their Conqueſts had reached, and made their great Advances in *Italy* about the *Auguſtan* Age.

But let us examine now the Climates they ſeverally came from, that we may the better know how to place them in our Gardens, and begin with the *Mala Epirotica* or Abricot, which was brought from *Epire*, or *Epirus*, a Province in *Greece*. It was ſeparated from *Macedon* by the River *Calydnus* and Mount *Pindus*; their chief Cities were *Lerta*, *Beſtia*, *Preveza*, &c. there the Abricot grew or was eſteem'd natural, about forty Degrees North Latitude, which is four Degrees more South, or nearer the South than the Cherry. A Gentleman told me, about four Years ſince, of an Abricot, which had a ſmooth Skin, which came from the Coaſt of *Barbary*, where I am informed this kind of Fruit grows wild; but yet the Degree of Latitude is the ſame with Part of *Greece*; ſo that its Government in the Garden is the ſame.

Next let us conſider the *Mala Perſica*, which we mean when we ſpeak of Peaches. They have their Name from *Perſia*, but that is ſo general, that we know not where to fix our Point; for *Perſia* extends itſelf from about thirty to forty Degrees; but if we take the Medium of that, then we ſuppoſe them to grow all in the ſame Place: It is about thirty five Degrees North Latitude; but it is likely their early ſorts grow in Places near the *Caſpian* Sea, five Degrees North from the middle of *Perſia*, which is my *Perſian* Latitude; and our lateſt Peaches might come from thoſe Parts nigh towards the *Perſian*

Gulf, which lie above five Degrees more South than the Point I fix for *Perſia:* ſo that there may be ten Degrees Difference of Latitude even in *Perſia*, the Peach Country. The Difference however, according to the Point I mention, *viz.* the middle of *Perſia* and *London*, is above ſixteen Degrees; or if we add five Degrees more South, and ſuppoſe Peaches to come from about the *Perſian* Gulf, then the Difference between *London* and the Peach Country is more than twenty one Degrees. It is certain, that Peach Trees in *Italy* will grow to ſixteen or eighteen Foot high in two or three Years after Planting, without Walls, which ſhews they love Heat; and our beſt Walls in *England* will not conſtantly ripen all the ſorts: However, our Catalogue of Peaches furniſhes us with ſo many various kinds, that we have ſome or other from *June* to *November*; and I therefore fancy their different Times of ripening happen from the Difference of the Climates they were brought from, as I hinted before: For every Vegetable that I know of will, if poſſible, preſerve its natural Time of Spring and Growth, whatever Climate it comes from or is in; if it comes from under the Line to us, it will aim at ſhooting in its own Seaſon, if we can but keep it alive. But I ſhall ſhew theſe Differences of Latitude more plainly at the End of this Letter, in a Table.

Next the Pomgranate, or *Mala Punica*, is a Fruit which was brought into *Italy* from *Carthage* near *Tunis*, whoſe Latitude is thirty three Degrees North; 'tis to be ſuppoſed, that this Tree, as it was brought from *Africa*, might have its original Place more South than *Tunis*, tho' it would live there; for I find it very difficult to ripen its Fruit with us: Some indeed have been barely ripe in *England*, and ſeveral have produced Fruit as large as Golden Rennets; but they often fail'd of ripening. In Mr. *Molineux's* Gardens at *Kew* in *Surrey*, and at Sir *Gregory Page*'s at *Greenwich* in *Kent*, they are in the beſt State; but tho' they have the Help of the beſt Walls, they are not in the Perfection which would pleaſe a Judge of good Fruit; the ſort indeed which I ſpeak of is the larger kind: But there is ſome reaſon to believe from what I have obſerv'd at *Paris*, that the Dwarf ſort would do much better with us, it is ſo generous to bloſſom when it is not ten Inches high; and upon one Plant which I had preſented me of that ſort, there were three Fruit, tho' it was not quite a Foot in height: Mr. *Fairchild* of *Hoxton* has of the ſort. They take little Room, and little Care; and I ſuppoſe will bear Fruit very readily with us, becauſe they bloſſom much earlier than the great ſort; and that they will live in *England* without Shelter, there is no doubt, if they are brought no farther Southward than the Coaſt of *Barbary*. It is obſervable in the *French* King's Garden at *Paris*, that they bear without Difficulty in little Pots, but are there ſheltered in the Winter; but I ſuppoſe the reaſon of that is, becauſe in that Country the Winters are much more ſevere than they are in *England*, even ſo pinching cold as to deſtroy their Vines, their Olives and Pomgranates: tho' their Summers are alſo ſo violent hot, that their Fruits ripen much better than ours do. So that, tho' we have not the Severities of their Winters, we want the Heat of their Summers to bring ſome Fruits to Perfection.

But to help this Deficiency a little with us, give me leave to offer two or three Conjectures of my own. Let us conſider, firſt, the Manner of the Growth of Fruit; and my Obſervations tell me, they all follow the ſame Methods of growing and ripening. When a Fruit ſets, it immediately begins to grow till it comes to a certain Period, where it ſtands ſtill for a time; and then we may obſerve, that it is not half ſo large as it ſhould be when 'tis ripe. Now at the time when the Fruit is ſtop'd in its Growing, I am of opinion, that the whole Tree is at reſt in its Vegetation; for we have many Inſtances of Trees that have been tranſplanted at ſuch a Time, and even the Fruit upon them has ripen'd, and they have the following Year produc'd Fruit in abundance. I have ſo many Proofs of this, that I would as ſoon take up a Tree for my own uſe, at that time of the Year as any other; eſpecially ſince Mr. *Johnſton* of *Twittenham* has ſo judiciouſly diſcover'd the Way of planting Trees in Summer.

But in the next Place let us conſider, that ſome time after this Stop the Fruit begins to enlarge it ſelf, and then with ſome haſte comes to ripen if there is due Heat for it. The ſudden Motion may depend upon two things: Firſt, a freſh Fund of Sap gathered from the Earth by new made Roots, has only the Fruit to feed for a time before the Shooters or younger Branches can receive any of it; and the Body of the Fruit being then ſpongy, is ſtill better prepar'd to receive it, and ſo occaſions the ſudden Swelling of the Fruit: Or it may be the raw Juices coming directly from the Earth, and mixing with thoſe which have had a longer time to filter thro' the fine Veſſels of the Tree, may cauſe a Fermentation, and from thence cauſe the Fruit's Swelling ſo ſuddenly; for Maturation or Ripening in Fruit is no more than a Tendency to Rottenneſs or Putrefaction, and all Bodies which ferment, naturally putrify when the Ferment is over. It may be likewiſe a fermenting of theſe Liquors in the Body of the Fruit which makes it ſwell, becauſe we have Inſtances of Liquors which ferment, that take more Room than they did before.

But, however, we find it is neceſſary for theſe Juices to be aſſiſted by the Sun, or ſome other Heat to ripen the Fruit as it ſhould be; for when there is a Failure of the Sun's Heat, when the Fruit is full grown, the Juices remain raw, and have neither an agreeable Taſte nor Flavour; but when they have a due Share of Heat the Ferment ceaſes, their Maturation begins and ſugars their Juices, and raiſes that Richneſs of Flavour which renders them agreeable to the Palate; and that this Ripening of Fruits is a Degree of Putrefaction ſeems to be not unreaſonable, becauſe they become ſoft by it, and emit a ſtrong Odour, as we find all Bodies do, more or leſs grateful to the Senſes, as they are in different degrees of Putrefaction.

Where our Climate therefore will not afford us Sun enough to ripen, as well as bring our Fruit to full Growth, they are helped by Fire, which heightens their Reliſh and ſugars their Juices, as we find by baking and ſtewing them, ſome of which are by theſe Means rendered more agreeable to the Palate than they would perhaps have been if they had been benefited by the Sun; for this baking and ſtewing of them is acting upon them much after the ſame Manner by artificial Heat as the Sun would have done by his natural Heat: Some of the moſt diſagreeable harſh Pears, by Violence of Heat in Baking, are render'd every way pleaſing to the Palate; their ſour Juices become ſugar'd, their Hardneſs is ſoftned, and their earthly Smell is chang'd into a high Perfume. When Peaches want natural Heat to ripen, they are much help'd by this Way; for as long as they are poſſeſs'd of theſe two kinds of Juices, which I have ſuppos'd to riſe in them at the two Seaſons of their Growth, 'tis Heat alone they want to meliorate their Taſte, and bring them to the deſir'd Perfection: And in ſome Caſes this Heat of the Fire makes a Fruit more delicious than the hotteſt Sun would have done. The Rasberry, however its natural Taſte is to be admir'd, yet by the Help of Fire is, I think, doubly enrich'd.

But the Heat which is uſed upon theſe Occaſions is raſh and ſudden, and therefore differs from that of the Sun, which influences every thing by ſlow Degrees; which may be one Reaſon why the bak'd Fruit and the ſun-ripen'd Fruit, of the ſame kind, are ſo different in their Taſtes: Some are pleas'd with a Fruit that has paſs'd the Oven; others delight in a Fruit which ripen'd according to the Rules of Nature, or has a natural Reliſh. I confeſs where the laſt can be in Perfection, I would chuſe it before any of the richeſt Confectures or preſerv'd Fruits. But as we are ſenſible every Year is not kind enough to preſent us with every ſort of Fruit in good Perfection, let us conſider how this Imperfection may be help'd, ſo as to bring the Fruit, which the Sun ſometimes neglects, to a tolerable Goodneſs, without Baking, Stewing, Sugars, Spices, or ſuch like.

What I ſhall offer upon this Occaſion depends upon an Obſervation which accidentally fell in my way. At the time of gathering ſome

Winter Fruits which grew in my Garden, I laid two or three ſorts upon the Pavement in my Conſervatory or Stove for exotick Plants; under which in froſty Weather, a Fire was made every Night, and the Sun's Warmth ſhut in every Day. The Names of the Pears were *Winter bon Chretien*, Black Pears of *Worceſter*, and *L'Epine d'Hyver*; I ſhould ſay too that ſome Sand had been ſpread upon Part of the Floor to dry, which Sand ſaved my Pears from bruiſing. After about two Months had paſs'd, and ſeveral Fires had been made under the Floor, for I then kill'd many Plants by too much Heat, I diſcovered that ſome of my Pears afforded a very agreeable Odour, and I cut one of the *Bon Chretiens*, which to my Palate was as good as any of the kind I had ever eat abroad; it had in it the Excellence of a well-ripen'd *Burée de Roy*. This Inſtance alarm'd me a little, that a Pear which I had ſeldom found ripe before the End of *January* or in *February* ſhould be ripe above two Months before its time: And I was the more ſurpriſed to find that 'twas full as rich in its Flavour, and as melting as any I had ever taſted abroad. I then tried a ſecond and a third, and found them all ready for eating, and anſwering the Character of the firſt: The following Week *L'Epine d'Hyver* was in a Condition of Ripeneſs, and very good; and about *Chriſtmas* my black Pears of *Worceſter* began to rot, but one of them was agreeable enough to eat, in the Opinion of ſome Gentlemen who taſted it.

In a late Survey of ſome Papers this Accident was brought to my Mind, and I then began to think how it might happen; but reflecting, that Heat had to do in the Ripening of Fruits, either by the Sun or the Oven, I thought it neceſſary to examine what different ſorts of Ripeneſs each of theſe produced; from whence I concluded that the conſtant Warmth of my Stove, by means of the Fires and the Sun, and the warm Air that was continually circulating, was the Reaſon that theſe Fruits ripen'd much ſooner with me than they did in other Places: And then having ſome Proofs that Nature ripens Fruits by gentle Degrees, I ſuppoſed my Pears had been led to this Perfection by a gentle Progreſſive or continued Warmth; but if the Heat had been ſudden and violent, 'twould have been baking rather than ripening of 'em.

From theſe Conſiderations I gather, that if we would ripen Fruit artificially, (I mean ſuch as come late with us) it would be neceſſary that before the little Autumn Froſts begin to fall, we ſhould ſhelter the Fruit from them, but not in ſuch a Manner as to exclude them entirely from the circumambient Air, for that Helps to feed the Fruit if it be moderate; for as Heat ſoftens and ſweetens Fruit, great Cold or Froſts makes it become tough and ſour, even tho' it has been ſoft and ſweet before.

When the Fruit has hung long enough upon the Tree, gather it dry, and tying the Stalk to a Thread, then provide as follows: Take a *Florence* Flask, or a Glaſs of that Shape, which ſhould be cut thro' the Body, and ſo ordered, with Wood or otherwiſe, that the two Parts may be ſet together again at Pleaſure, the Neck Part ſerving for a Cover to the lower Part: This Diviſion muſt be that we may get a large Fruit into it; ſo that it may hang by the Thread, and touch no Part of the Glaſs.

When the Fruit is once fix'd and the Parts of the Flask ſhut together, I wou'd adviſe it to be ſet up to the Neck in a Buſhel of Bran and Water mixt in a Waſhing Tub, or large earthen Pan of the Shape of a Buſhel Meaſure; and by the Heat of this Bran and Water, which will gently warm the Air that comes in at the Top of the Flask, and keep a gentle conſtant Heat, I ſuppoſe the Fruit will ripen; for there is no Heat I know of that is ſo conſtant as this, or that can ſerve in my Opinion better for this Purpoſe. In a Buſhel of wet Bran we may well enough ſet five Flasks, and the Heat may be preſerved near forty Days. In my *New Improvements* you will find the way of preparing the Bran and Water.

I think it reaſonable by this means to ripen ſome of our late Fruits, for 'tis a warm circulating Air that maturates all Fruits; ſome may require twenty, ſome forty Days, and ſome ſixty, according to their Nature. I leave the Mouth of the *Flask* open, *that the Air* may circulate: I am now upon the Trial, and have reaſonable Hopes of Succeſs; the firſt Expence is ſmall, and the Glaſſes will ſerve for many.

I own I have made a long Digreſſion, and it is high time for me to return to the *Mala Punica* or Pomgranate, which is the Subject that led me into it. This Fruit was brought from *Carthage* to *Italy*; and in *Italy* it bears and ripens very well, but does not like the Northern Parts of *France*; ſo that we have had but few Examples of tolerable ripe Fruit in *England*. Yet to bring theſe Trees conſtantly to furniſh our Tables I think it would be neceſſary to find ſome Way to make them ſpring about two Months before their time; the ſame kind of Walls which his Grace the Duke of *Rutland* has for forwarding of Grapes, would ſurely do for this Fruit, and bring it to great Perfection; or the Frames of Mr. *Millet*'s ſort whereby he brings Cherries to Perfection ſo many Months before their natural time of ripening, will alſo ſerve this Turn; for *Carthage* is but about ſeven Degrees more South than *London*. But by the Difficulty of rendring this Plant perfect with us, as we do Fruits of the ſame Latitude of *Carthage*, I ſuſpect it was not a Native of the Country about *Carthage*, but was brought thither from a more Southern Part.

We come now to the *Mala Cathonea* or *Quinces*, which are ſaid to be brought from an Iſland in the *Archipelago* about thirty ſeven Degrees Latitude; they grow well with us, but ripen late; I have not heard of any who have try'd them againſt a Wall, perhaps they might be mended, or elſe might perhaps be improv'd by my new Propoſition for Ripening Fruit.

The next is the *Pear* or *Pyrus*, ſo called from the Pyramidal Form of its Fruit; the beſt ſorts of which the *Romans* brought from *Alexandria*, *Greece* and the Country thereabouts; and if we have any of the ſame ſort now in being with us, I ſhould be apt to conclude that the latter kinds were brought from the moſt Southern Places. *Greece* lies about thirty eight and forty Degrees Latitude, and *Alexandria* about thirty.

*Plumbs* were brought firſt to *Italy* from *Armenia*, *Syria*, but chiefly from *Damaſcus*. *Armenia* lies about the Latitude of forty two, *Syria* about thirty five, and *Damaſcus* was once the capital Town of *Syria*, much about the ſame Latitude I have put down for *Syria*.

The *Mala Medica*, i. e. *Citrons*, according to the beſt Authors, and were ſo call'd becauſe they were brought from *Media*, an antient Kingdom in *Aſia* into *Italy*. *Media* lies in about forty Degrees Latitude, To conclude, I ſhall give you the Table I promis'd; for I think there is no room to doubt that the ſeveral Parts of *Europe* were furniſh'd with the Fruits I mention, from *Italy*, as has been ſaid before: And 'tis highly probable, that the *Romans* furniſh'd themſelves with them from the Places which are named.

| Latitude of London. | Engliſh Names of Fruit. | Roman Names of Fruit. | Names of the ſuppoſed Native Places of the ſeveral Tribes of Fruit. | Latitude of theſe Places. | No. of Degrees theſe places are more S. than London. |
|---|---|---|---|---|---|
| Lat. 51½. | Abricot. | Mala Epirotica. | Epirus in Greece. | about 40 Deg. N. | 11½. |
| dit. 51½. | Peach. | Mala Perſica. | about the middle of Perſia. | about 35 Deg. N. | 16½. |
| dit. 51½ | Pomgranate. | Mala Punica. | Carthage, about Tunis, in Africa. | about 33 Deg. N. | 18½. |
| dit. 51½. | Pear. | Pirus, or Pyrus. | Alexandria. | about 30 Deg. N. | 21½. |
| | | | Greece. | about 40 Deg. N. | 11½. |
| dit. 51½. | Plumb. | Prunus, or Prunum. | Armenia in Aſia. | 42 Deg. N. | 9½. |
| | | | The middle of Syria in Aſia. | about 34 Deg. N. | 16½. |
| | | | Damaſcus. | about 35 Deg. N. | 17½. |
| dit. 51½. | Citron. | Mala Medica. | Media in Aſia. | about 40 Deg. N. | 11½. |
| dit. 51½. | Quince. | Mala Cathonea. | An Iſland ſo called in the Archipelago. | about 37 Deg. N. | 14½. |
| dit. 51½. | Cherry. | Ceraſus. | Pontus by the Euxine Sea. | about 40 Deg. N. | 8½. |

From the foregoing Table, you may judge what Situation is moſt proper for bringing the Fruits named there to the beſt Perfection in our Climate; and likewiſe which Sorts may moſt require artificial Heats to help them. Thus, Sir, in the beſt Way I can, I have anſwered yours dated *September*, and remain

*Your moſt Humble Servant,*

R. BRADLEY.

Since my writing this Letter, I have been perſuaded to add the following Obſervations concerning the Names of the reſpective Tribes of Fruit Trees, as the *Botanical* Authors have given 'em to us.

## *Of the* CHERRY, *its Names, &c.*

THE *Cherry-Tree* is called in *Greek* κεράσος, and the Fruit κέρασπα; in *Latin*, *Ceraſus*, and *Ceraſum*. *Athenæus* and *Pliny* agree with the Account given of this Fruit in the foregoing Letter and make it derive its Name from a Place called *Ceraſumta* in *Pontus*.——The *Arabians* call the Cherry *Saraſie*, the *Italians Ciregie*, the *Spaniards Ceraſas*, and *Guindas:* The *French Ceriſes* and *Guines:* The *Germans Kirſen* and *Kirſchen*; and the *Hollanders Kriken*. We have now in *England* about ten Sorts which may be found in the Nurſeries about *London*.

Of

## *Of the* PEACH *and* NECTARINE.

THE *Peach* is called in *Greek* περσικὴ μηλέα, ῥοδάκηνα, and by ſome in *Latin*, *Malus Perſica*, and *Malus Rhodacina*; the *Arabians* call the Peach *Sauch* or *Chauch*; the *Italians* call it *Perſiche*, the *Spaniards Pexigos*, the *French Peſche*, and by the *Germans*, the Peach-tree is called, *Pfeſichbäum*; and by the *Hollanders Perceboom*. We have now about thirty Sorts in our *Engliſh* Catalogues; but ſome private Gentlemen have raiſed divers Sorts from the Kernel, which are new to the Nurſeries. With this I might place the Nectarine or ſmooth-coated Peach; for there is not Difference enough between the Nectarine and Peach to make them two Families, in my Opinion, as *Mathiolus* and *Cæſalpinus* ſeem to do, by calling the Nectarine *Nuciperſica*, or *Auguilaria Perſica Nux*; and *Pliny*, *Nuci Prunum*. We have about four or five Sorts of the Nectarines very good in our *Engliſh* Catalogues. The Nectarine, I think, may very well be placed with the Peach; becauſe every Part of the Seed, which I chiefly judge by, is like that of the Peach, as indeed are the other Parts of the Plant.

## *Of the* ALMOND.

THE *Almond* has many Parts not unlike a Peach; notwithſtanding the various Deſcriptions ſome of the Antients have given of it, it is not more diſtant from that Tribe than the Nectarine, nor perhaps ſo much; they have made it a Nut, becauſe the Kernel is edible, and the fleſhy Part not to be taſted like the Walnut, or eaten with Pleaſure like Peaches: But there are ſome Peaches in our Catalogues, whoſe fleſhy Part is little better in their Taſte and Flavour, tho' their Caſe is more fleſhy than the green Covering of the Almond; and then for ought I know, the Kernel is more like that of the Almond. The Kernels of the beſt Peaches are bitter, and it is yet uncertain, whether the Kernels of the worſt Peaches are not ſweet; and I believe that that Uncertainty may be owing in ſome meaſure to the Badneſs of the Peaches; for unleſs a Man eats the Peach, he will ſeldom come near enough to the Stone to break it; and if the Fleſh of the Peach be not good he lays it aſide at the firſt Taſte, and conſiders it no further. Of the Almond, we have ſeveral Sorts, whoſe Nuts differ in their Figure and Taſte. It was a Query put by an Acquaintance of mine lately, whether this was not the *Perſica Nux*, rather than the Nectarine? The Kernels of thoſe Sorts we receive from abroad, are ſome bitter, ſome ſweet; they are found about *Barbary*, and in Places about the ſame Latitude. In *Greek* the Fruit is called, ἀμυγδάλη and ἀμύγδαλον, and in *Latin Amygdalum*, but the Tree *Amygdalus*. Some are of Opinion, that *Cato* ſpoke of Almonds when he mention'd the *Nuces Græcæ*, or Greek Nuts; but others rather tranſlate them Walnuts. *Columella* mentions the *Amygdalæ*, and the *Nuces Græcæ*, as different Nuts; but however this be, the Almond is now called by the *Arabians Jauz*, *Kauz*, and *Lauzi*, the *Italians Mandole*, the *Spaniards Almendres*, the *French Amandes*, the *Germans Mandelkern*, and the *Hollanders Amandel*.

Of

## *Of the* PLUM TREE *and* ABRICOT.

THE *Greek* Name of the *Plum* is very uncertain, becauſe the Deſcription of the Plant, which ſome antient Authors call κοκκυμηλέα, in ſome things is different from thoſe Plums we cultivate now in *Europe*. *Theophraſtus* makes the Plum Tree an Evergreen; and I therefore ſuſpect this Plum was rather a kind of Olive, whoſe Fruit is not much different from a Plum in its Make; and the Olive is evergreen: Or is it not poſſible that ſome Plum Trees may be ever green, tho' we have not ſeen them? or perhaps as near a Relation between the Olive and the Plum as there is between the Cherry and the Cherry Bay, or common Laurel, which in their Fruit reſemble one another, tho' their Bloſſoms are differently ſet upon the Trees. The Olive brings its Bloſſoms upon Strings, the Plum in another manner; yet the Fruit of both are nearly ſhaped alike: So the Laurel or Cherry Bay brings its Flowers in Spikes, the Cherry in Cluſters, and their Fruit is ſhaped alike: Now the Cherry we know will grow upon the Laurel by being budded or graffed upon it, or the Laurel upon the Cherry; both which I have ſeen, and there is no greater Difference in my Opinion, between the Olive and the Plum; I am perſuaded one may be graffed or budded upon the other with good Succeſs.

But whatever is the κοκκυμηλέα of *Theophraſtus*, the *Latin* Name is *Prunus*, and by ſome *Prunum*; the *Arabians* call it *Anas*, *Avas* and *Hagias*; the *Italians Prune* and *Succine*; the *Spaniards Prunas*, *Andrinas* and *Amexeas*; the *French* call this Tree

*Prunier*,

*Prunier*, and the Fruit *Prune*; the *Germans* name the Fruit *Pflaumen* and the *Hollanders Pruym*.

Now concerning the *Abricot*, which among the *Romans* was called *Mala Epirotica*, the *Greeks* call it Μελέα 'Αρμενιακα; and tho' the *Romans* firſt found them in *Greece*, it is not improbable that the *Greeks* might firſt bring them from *Armenia*, as the *Greek* Name ſeems to declare. Some ſuppoſe the Abricot to be the Βερικκοκέα, which is rendred by ſome *Chryſomela*, i. e. *Mala Aurea* or Golden Apple. *Malus Armeniaca* is the moſt common *Latin* Name among the Botanical Authors; the *Arabians* call it *Mex* and *Mirmex*; the *Italians Armoniache*, *Moniache*, *Bachoſe* and *Griſomele*; the *Spaniards Albiricoques*, *Alvaricoques* and *Alberchigas*; the *French* call this Fruit *Abricot* and *Carmaignoles*; and the *Germans*, *St. Johan Pfferſick*. We have about five Sorts in our *Engliſh* Gardens.

## *Of the* POME GRANADE *or* POMGRANATE.

THE *Pomgranate* is call'd in *Greek* Ῥοιὰ and Ῥοὰ, but by *Hippocrates* Σίδας; ſome *Latin* Authors call it *Malus Punica* and *Malus Granata*; the *Arabians* call it *Kuman*; the *Italians*, *Malo Granato* and *Pomo Granato*; the *Spaniards*, *Granadas* and *Pomanas*; the *French Pome de Granade* and *Migraine*; the *Germans* call it *Granatoepffel*, and the *Hollanders*, *Granaetappel*; the Flowers of this kind of Tree are indifferently by ſome call'd *Balauſtium*, but others only give that Name to the double Bloſſoms; *Hippocrates* has call'd the Fruit Σίδας, ſo the Rind of that Fruit is call'd Ψίδιον and Σίδιον, and in *Latin Pſidium* and *Sidium*, but more frequently *Malicorium*, or *Cortex Granatorum*. It is thought by ſome this

Fruit is call'd *Malus Granata* from *Granado*, which now ſtands where *Carthage* did; from whence it was firſt brought into *Europe*. We have now about four ſorts in *England*.

## *Of the* CITRON *and* LEMON.

AS the Citron is a Fruit which has given ſome Pain to the Antients in their Character and Deſcription of it, 'tis uncertain, whether the Citrons we now cultivate in our Gardens be the ſame ſort they obſerved. The Μηλέα Μεδίκη, or *Malus Medica* is ſuppoſed to mean the *Pome Citron*, or Apple Citron; ſome Fruit of which ſort I have ſeen ripen in *England*, but the large long ſort is more common with us. *Theophraſtus* calls it *Malum Medicum* and *Perſicum*, or Apple of *Media* and *Perſia*, from which Parts it was firſt brought into *Europe*. The *Italians* call this Fruit *Cedri* and *Citroni*; the *French*, *Citrons*; the *Germans*, *Citrinoepffel*; the *Hollanders*, *Citreen*. To this Tribe belong the whole Race of Lemons, which is very numerous, and bring very good Fruit with little Care. I have gathered both Citrons and Lemons from my own Trees, which were as good as thoſe we receive from abroad; the Trees in my Opinion being more hardy than the Orange.

## *Of the* QUINCE.

THE Quince is call'd in *Greek* Μηλέα Κυδώνια, from whence the *Latin Malus Cydonia*, tho' ſome name it *Malus Cathonéa*, from an Iſland in the *Archipelago*. *Pliny* ſays it took its Name of *Malus Cydonia*, from *Cydone*, a Town in *Crete*; from whence, he ſays, it was firſt brought among us: But however it be, there is not Difference enough between the Latitudes of theſe Places to make any conſiderable Alterations in its Culture with us. There is one Sort of Quince in *Portugal*, which rejoices ſo much in that warm Climate, as to be fit for eating raw as ſoon as it is taken from the Tree; and, as I am well inform'd, is then a very pleaſant Fruit. Perhaps a good South Wall with us might bring that ſort to the ſame Perfection. But for the Generality Quinces are too harſh in moſt Parts of *Europe* to be eaten raw, which makes me ſuſpect that ſome of them might have their Original ſeveral Degrees more South than *Crete*; for ſince we find the Fruit of them meliorated, and brought to an agreeable Ripeneſs by Fire, which neither our Strength of Sun, nor Time of lying in the Fruitery will bring them to, it is not unreaſonable to ſuppoſe they had their Birth in a very warm Climate; for ſurely there never was any Tree created that had not all the natural Powers on its ſide to aſſiſt it in its Progreſs to Perfection: But in *Europe* we find only the ſort I have mentioned above, which has Sun enough to give it full Ripeneſs, and that kind perhaps had its Original as my Authors relate. The *Arabians* call this Fruit *Saffargel*; the *Italians*, *Melocotognio*, which is a Corruption of the *Roman* Name *Malus Cathonea*; the *Spaniards* name it *Membrilio* and *Marmello*, from whence it's ſuppoſed the Word *Marmelade* took its Riſe; *i. e.* from the Confection made of Quinces: The *French* call it *Pome de Coing*, and from them perhaps our Word *Coince* or *Quince*: In *Germany* it is named *Kuttenopffel*, and the *Hollanders*, *Queapple*: It may be perhaps, that the ſort of Quince which *Columella* calls the *Muſtea*, which he ſays is early, is that ſort which ripens upon the Tree in *Portugal*.

## *Of the* PEAR.

AS for the Pear I have very little to add to what I have related before of its Original, but that it is ſo nearly ally'd to the Quince, that whatever Pears are graffed upon Quince Stocks come forwarder, and ripen much ſooner than thoſe which are graffed upon free Stocks; from whence I ſtill am of Opinion, that the Quince had its Birth in a very warm Country; becauſe, as I have obſerv'd in ſome Parts of my Works, every Plant, tho' it be tranſplanted ſeveral Degrees more into Cold than its firſt Station was, yet it will keep Time in puſhing out its Buds at the Date of its own Spring; and ſo it is likely the Quince, whoſe Sap moves earlier than the Pear, comes from a Climate, whoſe Spring is fowarder than any where any of the Pears had their Birth. Upon this Occaſion I am led to conſider, that between *Montpelier* and *London*, there is about three Weeks difference in Point of the Growth, and Ripening of Fruit; therefore, if by any Contrivance we can force our Trees to bloſſom three Weeks earlier than ordinary, and preſerve thoſe Bloſſoms from the perpendicular Froſts, our Fruit may come to ripen with the *French* Fruit, which grow even as much South as *Montpelier*. A Gentleman, who is now with me, makes it a Queſtion, whether thoſe ſorts of Pears, which ſometimes bloſſom at *Chriſtmas*, had not their Original in a Climate where the Spring happens at that time of Year? And it is not unneceſſary to obſerve the ſorts that happen to do ſo; for every Obſervation, how trifling ſoever it may appear at firſt View, may ſerve another time to demonſtrate things of the greateſt Conſequence.

The Name the *Arabians* give the Pear is *Humeethe*; and by their knowing this and ſome other Fruits, which I have mention'd with Names given by them, I conclude they enjoy thoſe Fruits in the greateſt Perfection; for their Country is very hot. I have heard that in *Arabia Felix*, many of the Kinds which I have here ſpecified are much ſuperior to thoſe of the ſame Tribe cultivated in *Europe*. The *Arabs* likewiſe call the Pear *Cirmetire* and *Kemetri*; the *Italians*, *Pere*, and the *Spaniards*, *Pyras*; in *France* it is call'd *Poire*; in *Germany*, *Bir*, *Biren*, and *Piren*, and in *Holland*, *Berre*.

## *Of the* VINE.

THE *Greeks* call the cultivated or Vine-bearing Vine ἄμπελος οἰνοφόρος which by the *Latins* is named *Vites*, *Vinifera* and *Sativa*, and *Culta*. The wild Vine is in *Greek* Ἄμπελος ἄγρια, and in *Latin*, *Vitis ſilveſtris*; this wild ſort, if it be the ſame with that which the *Italians* call *Labruſca*, was growing about three Years ago in *Camden-houſe* Gardens, now in the Poſſeſſion of the Lord *Lechmere*. It was planted there by the curious Mr. *Balle*, who had it brought from *Italy*, and I think that ſort is no where elſe in *England*. The *Arabians* call the Vine *Harin Karin* or *Karni*; the *Italians*, *Vite Venefera*; the *Spaniards*, *Vid* and *Parra*; in *French*, *Vigne*; in *Germany*, *Weiureb*; and the *Hollanders* call it *Wijngaert* or *Wijnſtacke*.

## *Of the* FIG.

THE Fig-tree, as Authors relate, was brought from *Barbary* into *Europe*, and has made a conſiderable Progreſs in the South Parts of *France*, in *Spain* and *Italy*; where in Length of Time the Number of ſorts are become as numerous as of any other Fruit. In *Greek* the Fruit is called Σῦκον, and in *Latin*, *Ficus*; the *Arabians* give it the Name of *Sin*, *Fin*, and *Tin*; in *Italy* it is called *Fichi*; and by the *Spaniards*, *Hygos*; and the *French*, *Figue*; the *Germans* call it *Feighen*; and the *Hollanders*, *Feigen*. Some ſorts yield excellent Fruit if they are well managed and gather'd when they are full ripe; but the Want of Knowledge how to cultivate them as they ſhould be, and to know when they are in Perfection, has hinder'd their Progreſs in *England*. To anſwer the firſt, I ſhall give my Reader ſome Papers which I have lately receiv'd from Mr. Secretary *Johnſton* of *Twittenham*, which contain an excellent Method of managing the Fig-tree: And for the ſecond which is to know when the Fig is full ripe, I ſhall follow the late curious Lord *Capel*'s Rule; which is, that a Fig, when it has a Drop hanging at the End of the Fruit, is then in full Perfection.

And ſince I have given ſome Account of the original Names of the Tribes of Fruits which are now cultivated among us, and have added ſuch Remarks, as I can gather from the *Greek* and *Latin* Authors, concerning the Climate, where each kind naturally had its Station; I ſhall proceed to offer ſome Obſervations of a very curious Perſon in *France*, who had long apply'd himſelf to the Study of Fruit Trees, and had gain'd Knowledge enough thereby to give us not only the Names of the ſeveral diſtinct Kinds, but ſuch Deſcriptions of the ſeveral ſorts as may point out to us their Mode of Growth, their Shape, their Time of ripening, their Qualities; and has ſo exactly deſcrib'd the Perfections of every ſort, that from his Remarks any one may eaſily know every ſort of good Fruit, and when in Perfection. When the celebrated Mr. Secretary *Johnſton* of *Twittenham* gave me theſe Papers, I confeſs, I was enamoured with them; they gave me a pleaſing Idea of every Fruit which may be ſtil'd Good, and at the ſame time put it in my Power to oblige a great many who are Lovers of Fruit, and hitherto could not know rightly where or when to ask for it; for there is nothing more confuſed at preſent among many who profeſs themſelves Gardeners, than the true Names of Fruit; and the ſorts which we have now in *England* are ſo confounded, eſpecially if they are foreign, that they have almoſt loſt their original Names, which by little and little have been corrupted, and may be more and more ſo; as an Inſtance of it, the Pear, call'd in *French*, *L'Epine d'Hyver*, has been nam'd by ſome Gardeners *The Leaping Diver*; becauſe, ſay ſome, the Plants of them which were firſt brought to *England*, fell out of a Boat or Wherry into the *Thames*, and the Waterman leapt into the Water after them; and therefore this Pear was ſo call'd: But to prevent ſuch groſs Miſtakes for the future, as well as the giving us one ſort for another, and at improper Seaſons, when Fruits are not in their Perfection by a Month or two. Let us look cloſely into the following Remarks, which I hope will be ſuch as will help every Lover of

Fruit to eat the Fruits of his Garden in their greateſt Perfection, and help many of our curious *Engliſh* Gardeners to ſettle the Catalogue of Fruit Trees; for without this is done, many of our beſt Fruits for eating raw, may be ſtuffed among thoſe which are only made tolerable by the Force of the Oven or the Confectionary, or perhaps turn'd out of the Garden as good for nothing. Caſes of this Kind have often occaſion'd ſevere Reflections to be caſt upon the Nurſery Men, who furniſh'd the Fruit Trees; when the Fault was not on their Side, but in the Perſons who have brought ſuch Fruit to the Table as was not in its due Perfection. I hope then, it will not be my Caſe, to incur the Diſpleaſure of any one, ſeeing I propoſe every one's Advantage, tho' I find it has been diſadvantageous to ſome People to make ſo bold an Attempt.

The Author, who I ſhall give to my Reader, writes himſelf *John Merlet*, Eſq; a Perſon well known at *Paris* for his great Judgment in Fruit Trees, and long Experience of them. And as near as poſſible, I ſhall give my Readers his own Words concerning the Fruits known to him and mention'd by him.

To begin then with our Author; he introduces his Diſcourſe thus,——That he would not have undertaken to have written about the Culture of Trees, or of the ſeveral Species of Fruits; but that, among the many Books that have gone Abroad, there is not one Author that points out to us which Kinds are the moſt to be admired, or worthy our Care. Thoſe Papers which have been printed, have treated in general of Fruits, without telling us which are the beſt or worſt. Their Catalogues of Fruit are full of Names, but their Names do not diſtinguiſh their Perfections: Gentlemen therefore, for the moſt part, who have cultivated Plants from theſe Liſts, either in Eſpaliers or Dwarfs, have rather ſtock'd themſelves with vaſt Varieties, than conſider'd the Goodneſs of the Fruit they planted; or as it often has happen'd, the ſame Fruit under different Names has been cultivated in two or three Places in the ſame Garden. This obliges me to abridge the common Catalogue, and preſerve only the Names of ſuch Fruits as are good with us, and to give their Synonims, and deſcribe their ſeveral remarkable Differences; and moreover to mention ſuch as have not yet been treated of by any Author, or whoſe Time of ripening or Perfection has not been juſtly obſerv'd; without which, Fruits are uſeleſs. This Knowledge, in my Opinion, is not unworthy Men of the greateſt Quality; and from my Experience, and diligent Application to Fruit for many Years, I ſhall therefore freely lay down what I know of the Matter. The moſt noble *Greeks* and *Romans* have indulged their Pleaſures in the Fruits of *Perſia* and *Turkey*: The *Sophy* and the *Grand Seignior*, as well as thoſe Perſonages who bear the higheſt Rank in thoſe Empires, have all of them their Gardens planted with the moſt delicious Fruits; and ſome Years ſince, that Curioſity has reacht *France*, where now Perſons of the moſt noble Character and Quality apply themſelves daily with the greateſt Aſſiduity, to reaſon and philoſophiſe upon the pruning of Trees, and to gain Experience in that Art, and the Knowledge of the beſt Fruits, which every Gardener does not do; few of them regarding the Strength or Weakneſs of a Tree, or giving their Mind to conſider ſeriouſly which Branches ſhould be taken away, which ſhould be ſhortned, or which ſhould be left long upon a

Tree, to preſerve the Wood ſtrong and vigorous, or the Fruit large and of a high Flavour. Eſpalier Trees muſt be differently pruned from Dwarf Trees; and again, Stone Fruit requires a Management very different from Kernel Fruit, as I have endeavour'd to explain in few Words at the End of every Chapter, for the Uſe of the Curious; who, I deſire, if they have any better Method of their own, that they would be communicative, and make it known with the ſame Candour and Sincerity I offer theſe Papers; which are founded upon Experience, and have often been reviſed, corrected, and improved, with the Addition of many good Fruits which has appeared of late Years among us; ſuch Memoirs would contribute to the Advantage of Gardens in general, and the Particular Satisfaction of every one who has the ordering or Direction of a Garden.

" After this ingenious Introduction of Mr.
" *Merlet*, he goes on to give us the Names and
" Deſcriptions of the ſeveral Sorts of Fruits which
" are moſt in eſteem; not troubling himſelf with
" the Characters of thoſe which are indifferent.
" And as the Reader takes a Survey of his Per-
" formance, he muſt remember, that about *Paris*,
" the Summers are much hotter than with us,
" and the Winters much colder; and that the
" late Fruits which he treats in *Eſpaliers* ſhould
" be in our Climate rather planted againſt Walls.
" I obſerve Mr. Secretary *Johnſton* of *Twitten-*
" *ham*, does not think it below the Rank of
" ſome Winter Pears, to allow them the beſt
" Walls, and the beſt Expoſure, and conſequent-
" ly has the beſt Fruit. As I ſhall have occaſi-
" on to tranſpoſe ſome of the Chapters of Fruits
" mentioned by this curious *French* Gentleman,
" for Reaſons which will afterwards appear, I ſhall

" here begin with his Obſervations upon the
" Fig-Tree, which is in a Manner a Stranger to
" us.

## *The Deſcription and Culture of the beſt Sorts of* FIGGS, *by* John Merlet *Eſq.*

THE Fig-Tree ſeems to have more Wiſdom than any other, as it does not bud or ſhoot till after all ſevere Weather is paſt: Its Fruit is delicious, and there are many kinds of it.

The firſt or moſt early Fig, is the White Fig, called in *French*, *Figue Fleur*; or in *Engliſh*, the Fig Flower, or Flower of Figs; of this there are three Sorts: firſt, the Large, with a ſhort Stalk a little flat.

2. The Large with a long Stalk.

3. The little *Marſeilles* Fig, which is flat, and is a very great Bearer.

These Three kinds are all white without and within the Fruit, they are richly ſugar'd and melting, have few Seeds, and bear twice a Year, in the Spring, and in Autumn.

Of theſe there are ſome Sorts better and more rare than others; ſome larger and more melting, and ſome ſmaller in Fruit, and leſſer Seeds.

4. Next to theſe is the Yellow Fig, or in *French* call'd the *Angelique*, or *Incarnadine*; which we may interpret, the Angelick Fig, or Incarnation Fig; becauſe of its reddiſh Colour within-ſide like the Pomgranate: It brings a large Fruit like the former, which we call the Fig Flower; it is given to ſhoot much, and bear little in the Spring, but in *September* brings Fruit in abundance, which are rather better taſted than the Spring Fruit, and ripen kindly.

“ One of theſe Figs was brought from *Italy*,
“ to *Camden-Houſe* Gardens, where it grew and
“ proſper'd very well without the help of a
“ Wall.

5. The *Golden* or *Gilded Fig*, or in *French*, *Figue Dorée*, is large and flat; it brings a good ſecond Crop of Fruit, much better in Autumn than in Summer; this Fig is called by ſome *la Gueuſe* or *Begger*, becauſe its Skin tears and cracks when the Fruit ripens.

6. The Flat Violet Fig, or in *French Figue Violette plat*, has its Fruit of a middling Size, and brings little Fruit in its Summer Crop; theſe are ſuppoſed to be the Bloſſoms of Figs, becauſe of their Appearance upon the Wood of the preceding Year: But upon the Motion of the ſecond Sap, or upon the young Shoots towards the End of the Summer, it bears plentifully: It is melting, and may be rank'd among the beſt Figs.

7. The Long Violet Fig, or in *French Figue Violette longue*, is very large; 'tis named by ſome of the *French* Gardeners *Figuepoire*, or Pear-Fig; and likewiſe *Figue de Bourdeaux*, which is, *Bourdeaux*-Fig: This is a great Bearer in both Seaſons, but hardly ripens its Autumn Fruit; 'tis of leſs Eſteem than the former, being full of large Seeds, which renders its Pulp dryer than the preceding Sort; and beſides, its Flavour is too rank of the Fig; but 'tis neceſſary to have ſome of them, becauſe they ripen in *September*, between the firſt and ſecond Crops of white Figs.

8. The Green Fig, or in *French*, *Figue Verte*; in *Italian*, *Verdone*; is called likewiſe by ſome of the *French* Gardeners, *La Verdalle*, or *Figue d'Eſpagne*, or *Spaniſh*-Fig; this Fruit is almoſt round, always of a green Colour, tho' it be full ripe,

and very Red within-ſide; it bears little in its firſt Crop; but the ſecond, that is to ſay, in *September* and *October*, it brings plenty of Fruit; it is one of the beſt Sorts. Its Wood is leſs ſubject to freeze than that of other Fig-Trees, unleſs that which the *French* call *la Figue d'Automne*, or *la Figue Celeſte*; which in *Engliſh* may be rendred the Autumn Fig, or Celeſtial Fig; whoſe Fruit ſtands the Winter, and ripens in the Spring, for which reaſon ſome call it *Figue d'Hyver*, or Winter Fig.

"The Green Fig, mention'd above, does very "well in *England* without much Care, as I have "experienced.

9. The Melinga Fig, or *Figue de Melingue*, is of a Violet Colour, 'tis very long and thin, and red within, and very delicious; it requires the beſt Expoſure, and is very apt to run and drop its Fruit when 'tis near ripe, and 'tis difficult to make it bear for ſome Years after 'tis planted.

10. The Brugeotte, a Fig ſo called by the *French* and *Italians*, is pretty large, flat, and of a Violet Colour; 'tis red within, very well taſted, and bears extreamly in Autumn.

11. The Dwarf Fig-Tree, or in *French Figuier Nain*, brings ſhort Shoots with Buds very cloſe ſet; it bears plentifully, and its Fruit is of a Violet Colour, and red within: They are of a pretty large Size.

12. The Bouriageotte Fig is larger than the former, and of a rounder Make; its Colour is not ſo deep a Violet; its Stalk very long and thick; it bears as little as the others about St. *John*'s-Tide, but brings plenty of Fruit in *September*; 'tis a good Fruit, altho' its Seeds are large.

13. The little Mignionne Fig, or in *French*, *Petite Figue Mignionne*, is not much larger than a Cherry, and is of a browniſh Violet Colour, and very red within; 'tis very well taſted, and brings a great deal of Fruit.

14. The Madera Fig, or in *French*, *la Figue de Madere*, is the black, large, long Fig; it produces good ſtore of Fruit, but they ripen with difficulty about *Paris*: It requires abundance of Sun, and a very high Wall.

15. The Grey Fig, or in *French*, *la Figue Griſe*, is Greyiſh on one Side, turning a little towards the Violet Colour: 'Tis long and pretty large, and is well enough eſteemed.

16. The Genoa Fig, or in *French*, *Figue de Gennes*; likewiſe among ſome *French* Gardeners is named *l'Aubicon*, or *la Figue Fievre*, or Feaver-Fig; brings the largeſt Fruit of any other: 'Tis long and of a browniſh Purple Colour, and is ſhaped ſomewhat like a *Bon Chretien* Pear, and is excellent. The Leaves are of an extraordinary Bigneſs; this Sort brings plenty of Fruit in its ſecond Crop, and very few in the firſt. At *Genoa* excellent dry'd Sweet-meats are made of this Fruit.

17. The Fig named *Verniſingue*, is almoſt round and of a browniſh Purple, and is eſteemed one of the beſt Sorts; it delights in much Sun, like the reſt, which bring their Fruit late in Autumn.

I could yet mention a great Variety of Figs, but theſe are what I account the beſt, and my Deſign is only to ſpeak of ſuch Fruits as are worthy our Care, and reject thoſe which have hitherto crouded our Catalogues to no purpoſe.

The beſt or warmeſt Expoſure will much meliorate them; not but moſt of them will do well almoſt on any Wall, tho' the Fruit may come ſomewhat later; for a dry warm Air will ripen them.

The Fig-Tree thrives better in dry than in wet Ground, and hates the Knife; for the firſt Figs always come upon the extream Parts of the Branches of the preceding Year: But it is good however, to pinch off the Top Buds of the young Branches of the ſame Year in *June*, becauſe it ſtops the too free Courſe of the Sap, and brings the Tree to bear Fruit much earlier in both its Crops.

" If a Wall Fig-Tree happens to be too full " of Wood, we may about the beginning of " *July*, take out ſome of the great Branches, " and immediately apply ſome of the prepar'd " Mixture warm with a Bruſh to the Wound. " *Note*, the Mixture is of Bees-Wax, Roſin and " Turpentine.

Fig-Trees ſhould be tranſplanted in *March* or *April*, when the Froſts are over; for Froſt is a great Enemy to them; which obliges us to cover many Sorts in the Winter, and even to plant ſome in Caſes, to be houſed with our Orange-trees; when they are in full Sap, they muſt be well water'd, for they will then drink a Sea.

It is alſo to be obſerved, that Fig-trees which require Walls, will not be conſtrained like other Wall or Eſpalier Fruit, but muſt have a great ſhare of Liberty; they cannot proſper or bring good Fruit if they are confined; we may indeed faſten the great Stems to the Wall, but it is neceſſary to let the young Shoots which bear the Fruit, be free and enjoy the Air; the Fruit will ripen better.

The Fig-tree may be inoculated with much better Succeſs than graffed in the Cleft, but there muſt be great care taken to preſerve the Buds when they have taken; during the ſeverity of the Winter we may cover them with Straw. The ſafeſt Way is to inoculate about the Bottom of the Tree near the Root, which Part is leſs ſubject to freeze than the extream Parts. And when it happens that the Fig-trees are ſo injured by Froſts, that ſome of their Branches are loſt, we muſt not cut out the dead Wood till the *Midſummer* following. The Fig may likewiſe be graffed in the Stock or the Bark, and the beſt Way by Approach, which is the ſureſt Way; I have likewiſe graffed in the Cleft, which has taken very well.

The Fig-tree does not love Culture as moſt other Fruit-trees do, it covets none at all, or very little; for it is a certain Rule, that the more we dig about it, the leſs Fruit we have from it, and it *runs all into* Wood, it delights in ſtony Ground without any Culture; the Wood of the Fig is cloſe ſet with Buds, which yearly produce Fruit; the Sap of this Tree is too vigorous to want any help or any enrichment, but rather is kept to bearing by laying Sand at the Root, which helps to bring the Fruit forward; The Aſhes of Lye or Buck Aſhes are extreamly good to lay at the Roots of Fig-trees and have an admirable Effect: They kill Weeds, warm the Earth, and ſet the Tree to bearing plentifully that Fruit which is the favourite of our Gardens.

## CHAP. I.

## Of VINES, their Culture and Management, according to the Practice of the greateſt Virtuoſo's in France: With the Names and Deſcriptions of all the beſt kinds of GRAPES.

I Shall introduce theſe Papers with ſome curious Obſervations concerning the Culture of Vines, as now practiſed by the moſt Ingenious in *France*, and put into my Hands by a Perſon of Honour.

The Vine is raiſed either by Layers or Cuttings, but the Layer is much the ſurer and beſt way. The Layers ſhould be made of Branches or Shoots of two Foot long at leaſt, and be all bury'd in the Earth but two Buds only; but if it was three Foot long, it would be much the better and make ſtronger Shoots. The Layers ſhould be never nearer one another than a Foot and an half, but the Cuttings ſhould be three or four Foot apart if we plant them for ſtanding. When they are once thus diſpoſed, we muſt be ſure to dreſs them three times every Year, ſtirring the Ground gently about them: The firſt time is early in the Spring, juſt after the Vines are pruned, which is done with an Hough; the ſecond is alſo done with an Hough in *June*; and the third in *Auguſt* with the ſame Inſtrument.

ment. In *France*, the firſt of theſe Operations is call'd *Houer*, the ſecond *Biner*, and the third *Tiercer*; but ſome Vine-dreſſers neglect this laſt Work, tho' I think it is neceſſary as the others to nouriſh and enlarge the Fruit, and ſtrengthen the Wood: Some will do this after the Vintage, but it has not then the good Effect we deſire; all that can be expected from ſuch late opening the Ground is the Deſtruction of Weeds, which perhaps robs the Vines of ſome Nouriſhment.

The ſecond Year we prune the Vines, leaving only the ſtrongeſt Shoot ſhorten'd to three Buds.

The third Year we muſt diſbud our Vines, ſo as to leave only two ſtrong Shoots, which the following Year muſt be prun'd, *viz.* the lower Shoot, which is next the Earth, muſt be left with three Buds only, but the uppermoſt may be pruned to five or ſix Buds, and then ſet up the Props or Stakes.

The Diſbudding I ſpeak of, I account very neceſſary, becauſe a Vine is little wounded by it, and the Shoots which come forward are ſtrong and bring good Fruit; but without this Method our Vines are either too much wounded, or are too full of Wood, to bear or ripen their Fruit well in a Vineyard.

The fourth Year 'tis neceſſary to clear the old Wood of its black Strings, or rough looſe Bark, and refreſh the Earth about the Root in fair Weather if poſſible, without Froſt, or Snow, or Thaw; and when the Vine is ſtrong, we may leave two Runners, one bearing Branch and one Layer: In extraordinary Caſes we may leave two or three of the latter, but this depends upon the Skill of the Vine-dreſſer; we may leave more or leſs Wood or Buds, as the Vine is more or leſs ſtrong.

In a full Vineyard the Layers muſt be taken up every Year at the pruning Seaſon, when it is alſo a proper time to lay down others; the Layers made in Winter are apt to ſhoot into Wood, and thoſe laid down in Spring are more ſubject to bear, and run leſs into Wood.

'Tis a Rule in *France* to prune young Vines, that is, during the three firſt Years, at the New of the Moon; but when they come to bear, they chooſe the Decreaſe, in *February* or *March*; and in this laſt caſe, 'tis to be obſerved, that the Top Bud be left at the Back of the Slope in the Cut, leſt the Vine, which is ſubject to bleed by ſuch late Pruning, ſhould drop ſo much upon it as to rot the Bud: And likewiſe great Care ſhould be taken that the Buds be cut or wounded upon the Shoots that are pruned.

To bring Grapes forward, we may plant them againſt Walls; but I think 'tis not adviſeable to plant them among Peaches or other Fruits, but againſt a Wall by themſelves; for their vigorous Shootings are apt to over-grow, and ſmother the Trees that grow near them.

If we cultivate any of the Muſcat Grapes, we ſhould not uſe Dung about the Roots; for tho' they will make vigorous Shoots by that Dreſſing, they will not bear well, and the Grape will ripen late, and have little Taſte; but when the Soil is dry and poor, the Fruit is well reliſhed, ripens ſooner, and laſts longer.

It is an Obſervation about *Paris*, that when we plant Vines againſt Walls, they ſhould be expoſed to the Eaſt Sun rather than to the Weſt: I ſpeak this of ſuch Vines as are brought from the warmer Climates and ripen late; for in this Expoſure I find the Fruit is better, and ripens earlier than the ſame ſorts will do againſt a South Wall; for the violent Heat of the South Sun and the Wall together hardens the Skin of the Grape, and tho' it is ſooner coloured, yet are its Juices leſs mature or agreeable.

N. B. *An Inſtance of this kind I obſerv'd at* Cambden-houſe *two or three Years ſucceſſively.*

In the pruning of late bearing Vines, we ſhould obſerve that we do that Work as ſoon as the Fruit is gathered; this will occaſion the Sap to move early in the Spring, and bring the Vine to bloſſom earlier than ordinary, which conſequently diſpoſes the Fruit to ripen ſoon; but if we prune theſe late Grapes in the Spring, the Fruit will come late, and be good for nothing.

To gain time in bringing forward any curious ſort of Grape, we may graff a Vine in the Cleft; and for this Purpoſe we muſt chooſe our Stock at the Root of ſome ſtrong Vine, and cut it into the Ground three or four Inches, and therein fix our Cion, which will preſently ſtrike: I account the beſt Stocks for this uſe are the Muſcat Grapes, whoſe Juice is ſweet and high flavour'd, and the proper Seaſon for the Work is about the Beginning of *April.*

When the Foot of the Vine is large, we may put in two Cions ſide by ſide, but when 'tis young and pithy, we muſt place our Graff in the Stock, as we graff a Jeſſamine: Such Graffs will come to bearing the ſecond Year.

To raiſe Vines from Cuttings, I have ſaved a great deal of time by ſetting the Cuttings in Baskets of proper Mold, and putting them in Hotbeds, always obſerving to prune the Bottom of the Cuttings juſt below a Bud; by this means I have had very large Vines in one Summer, and about Autumn have planted them with their Baskets in the Places where I deſigned them to remain: If they were late ſorts, I pruned them betimes, which occaſioned the Fruit to ripen before the Autumn Fogs could injure it.

The Grapes which are moſt eſteem'd in *France* are,

*Firſt*, The *Precox*, or *Morillon hativeau*, i. e. the early Morillon, or by ſome call'd *Vigne de la Magdelaine*, i. e. the *Magdalen* Grape, it is the earlieſt ripe, but is not ſo good as it is rare: The Skin is thick, and is ſubject to be devour'd by the Flies: However we muſt not be without ſome Vines of it, as it makes a Diſh at the Table before other Grapes are fit for eating.

2. *Morillon taconné*, or *Munier*, i. e. the Miller's Grape, ſo call'd, becauſe of its white powder'd Leaves: This ſort is the ſecond ripe, and much better than the firſt; it makes excellent Wine, and bears well.

3. *Morillon noir Ordinaire*, *i. e.* the common black *Morillon* is a very ſweet Grape, fit for the Table, and makes good Wine. In *Burgundy* 'tis call'd *Pineau*, and at *Orleans*, *Auverna*.

4. *Morillon blanc*, i. e. the white *Morillon* is harder than the former.

5. *Raiſin de Mantoue*, i. e. the *Mantua* Grape, is ripe about the Beginning of *Auguſt*; its Bunches are pretty large as well as its Berry; its Shape is rather long than round, and its Colour like yellow Amber, its Juice is very rich.

6. *Raiſin d'Autriche*, *ou Feuille de Perſil*, i. e. the *Auſtrian* Grape, or Parſly leav'd Grape, is alſo call'd *Ciouta*, is a white ſweet Grape which

bears pretty well: The Fruit is ſomewhat like the *Chaſſelas*, but its Juice is not very vinous.

7. The *Chaſſelas* or *Muſcadet* is an excellent large Grape, either for eating raw, or drying, or making Wine: Its Bunches are not too full of Fruit.

8. *Chaſſelas noir*, i. e. the black *Chaſſelas* has moſt of the Qualities of the former, but is not ſo common. There is alſo a red ſort of *Chaſſelas*, whoſe Bunches are larger than the others; but neither of theſe are ſtrongly colour'd.

9. *Muſcat blanc de Frontignan*, i. e. the *Frontignean* white *Muſcat* Grape, is a large long Bunch, full of Fruit; 'tis excellent for eating raw, or in Sweetmeats, it makes good Wine, and dries well, either in the Oven or in the Sun.

10. There is a kind of Grape call'd *Muſcat blanc de Piedmont*, i. e. the white *Piedmont Muſcat* Grape; its Bunch is long, and has ſmaller Fruit than the former, and its Pulp more unctuous.

11. *Muſcat de Ribezalte*, is richly musked, its Berries ſmall, and its Juice ſweet and ſo agreeable, that it would be one of our firſt Grapes, if it was not apt to run; frequently degenerating to the Curran Grape.

12. *Muſcat rouge*, i. e. red *Muſcat* or *Muſcadine*, by ſome call'd *Muſcat de Corail*, i. e. Coral Muſcadine from its lovely Colour; has the ſame Qualities of the former, but its Berries are firmer. It requires a good deal of Sun to bring it to Perfection; but 'tis then one of the beſt Grapes.

13. *Muſcat Noir*, i. e. the black Muſcadine is larger than the former; its Bunches very full of Fruit, but is not ſo high taſted, but its Juice very ſweet; it bears well, and ripens its Fruit pretty forward.

14. *Muſcat Violet*, i. e. the Violet Muſcadine is of a clearer Black tending to a Violet Colour; its Bunch is very long, and its Fruit large; it is richly musked, and one of the beſt.

15. *Malvoiſie Muſquée*, i. e. the *Malmſey* Muſcadine, is one of the richeſt musked Grapes, ſurpaſſing every other kind in high Perfume. It comes from *Montferrat* and grows plentifully about *Turin*.

16. *Muſcat long*, i. e. the long Muſcadine, or *Paſſe-muſquée d'Italie*, i. e. the late *Italian* Muſcadine, makes excellent Sweetmeats, or may be eaten raw: Its Bunches are very large and long, and it muſt be warmly expos'd to ripen its Fruit; but even tho' the Seaſon ſhould not ſuffer it to be half ripe, it is much higher perfumed in Sweetmeats than any other Grape, the Fire ſupplying that musked Flavour which it was denied by the Sun.

17. There is likewiſe a Grape call'd *Muſcat long Violet*, i. e. the blue long Muſcadine, or in ſome Places call'd the *Madera* Muſcadine, 'tis a beautiful and excellent Grape.

18. *Raiſin de Corinthe*, i. e. the Curran Grape, or *Corinthian* Grape, has a ſweet Juice; the Bunch is narrow, and cloſely preſſed together, it has ſeldom any Seeds no more than the red Curran Grape.

19. *Le Corinthe Violet*, i. e. the blue Curran Grape, is a little larger than the former; is very good, and without Seeds; it is very apt to run, and for that Reaſon ſhould be pruned longer than other Vines.

20. *Raiſin ſans Pepin*, i. e. the Grape without Kernels, is a kind of *Chaſſelas*, but the Bunch is not ſo large, and a little Sharp; however it is extreamly good prepar'd in an Oven, as it has

no Kernels; for which Reaſon, ſome call it the Curran Grape.

21. *Vigne Greque*, i. e. the *Greek* Grape, by ſome call'd *St.* Jaques, *i. e.* St. *James*'s Grape, or *Raiſin Merveilleux*, i. e. the miraculous Grape, is a ſort of red *Bourdelais*, whoſe Fruit is large and round, it comes early; and has a pleaſant ſweet Juice, and makes very good Wine; its Bunches make a very good Appearance; and its Leaves, when the Fruit is ripe, are finely mark'd with red, which is pretty frequent to black, blue, or red Grapes.

22. *Le Jenetin*, or Jeneting Grape, is white, by ſome call'd *Muſcat d' Orleans*, i. e. *Orleans* Muſcadine, or *Raiſin de St. Menuis*, is very ſweet and not unlike the *Melié*, but rather like the *Malmſey* Grape; 'tis apt to degenerate.

23. *La Baunie*, i. e. the *Beaune* Grape, is of a whitiſh Colour, pretty good, bears well, and is ſo call'd, becauſe it is very frequent, and much admir'd about *Beaune*.

24. *Le Bourguignon*, is a black Grape, pretty large; is better for making Wine than for eating: It is an extraordinary Bearer.

25. *Le Damas*, i. e. the Damask Grape, is an extraordinary Fruit; the Bunches are very long and large, and the Grapes bigger than ordinary: They are of an Amber Colour, and have but one Kernel in each; they are apt to run, and therefore ſhould be pruned long; there is the white and the red of this ſort.

26. *Raiſin d' Abricot*, i. e. the Abricot Grape, is ſo call'd, becauſe its Fruit is yellow, and gilded like an Abricot; 'tis of that Tribe which is diſtinguiſhed by the Title of *Bourdelais*.

27. *Melié blanc*, i. e. the white Melie Grape, is a good Grape for eating, and one of the beſt

for the Vintage; its Juice is ſweet, bears well, and will keep. This is one of the beſt for drying in the Oven.

28. *Melié noir*, i. e. the black Melie Grape, is not ſo good as the former for eating, nor makes ſo ſtrong Wine.

29. *Melié vert*, i. e. the green Melie, is very rare, and bears well, and is not apt to run. The Wine made of this Grape never changes yellow.

30. *Le Sauvignon* is a black Grape, large and long; 'tis early ripe, and is one of the beſt Grapes.

31. *Le Sauvignon blanc*, the white ſort has the ſame Qualities with the former; each of them are little known.

32. *Le Gamet*, is of two ſorts, the black and the white; 'tis an extraordinary Bearer, and one may ſay the very beſt; but the Wine made of it is ſmall, and its Plants laſt but few Years.

33. *Bec-d'Oiſeau*, i. e. the Bird's-bill Grape, or *Piquant-Paul*, is call'd in *Italy*, *Pizutelli*, that is to ſay pointed; the Grape is large, very long, and pointed at both Ends.

34. The blue *Pizutelli* is call'd in *France Dent de Loup*, i. e. Wolfs-tooth; its Grape is long, but leſs pointed than the former; it keeps well, and is a good taſted Fruit, and very handſome to the Eye.

35. *Le Gland*, i. e. the Acorn Grape, ſo call'd becauſe the Fruit is ſhaped like an Acorn; it is very ſweet, keeps well, and is of a yellow Colour.

36. *Raiſin Swiſſe*, i. e. the *Switzerland* Grape, is rather rare than good. The Cluſters are large and long, and its Fruit ſtriped with black and white, and ſometimes half one and half the other.

37. *Gros noir d'Eſpagne*, i. e. the great black *Spaniſh* Grape, or by ſome call'd *Vigne d'Alicant*, i. e. the *Alicant* Grape, brings large Cluſters, well furniſh'd with large Grapes fit for the Table; from this Grape is made the moſt excellent *Spaniſh* Wine.

38. *Le Sanmoireau* is a black Grape excellent for eating and making of Wine. The Grape is longiſh, firm, and grows free upon the Bunches.

39. The *Fromenteau* Grape is of a reddiſh grey Colour; its Bunches pretty large, and its Grapes or Berries cloſely ſet together. The Skin of this Fruit is a little hard, but its Juice excellent; 'tis of this Grape is made that excellent Wine call'd *Sillery* Wine, or *Vin de Sillery*.

40. *Blanquet de Lemois* is a white tranſparent Grape, as clear as Glaſs; the Berry is long and pretty large; it bears well, and has an excellent rich Juice.

41. *La Malvoiſie*, i. e. the *Malmſey* Grape, is of a grey Colour, bears well; its Berry ſmall, but extreamly rich and high flavour'd: It ripens early, and is ſo full of Juice, that I eſteem it the moſt melting of all Grapes.

42. *Malvoiſie rouge.* i. e. the red *Malmſey* Grape, is of a flame Colour, and has the ſame Qualities with the former.

43. *Malvoiſie blanc*, i. e. the white *Malmſey* Grape, is a more rare, but a later Grape than the other two. I eſteem the grey ſort to be the beſt.

44. *Le Maroquin*, is a large blue Grape, which brings Bunches of an extraordinary Size, and its Berries very large, round and hard; the Wood is reddiſh, and the Leaves vein'd with

red. One ſort of it bears in an extraordinary Manner, and bloſſoms three times in a Summer. The *Midſummer* Fruit ſometimes comes to Perfection about *Paris*, but the third Bloſſom comes to nothing: However in the South Parts of *Italy* all the three Crops ripen, for which reaſon 'tis call'd there *Uva de tre Volti*.

45. *Raiſin d' Italy*, i. e. the *Italian* Grape, named by the *Italians Pergolieſe*, is of two kinds, *viz.* the white and the blue. The Bunches are large and long, and the Berry longiſh and freely diſpoſed upon the Bunches. It does not ripen kindly about *Paris*.

46. *Raiſin d' Afrique*, i. e. the *African* Grape, is very large, its Berries like Plums; there are the red and the white; its Bunches are of an extraordinary Size; the Figure of its Grape rather long than round, a little flat towards the Point; its Wood and Leaf are remarkably big, and it requires a great deal of Sun.

47. *Le Surin* is a Vine highly eſteem'd in *Auvergne*; 'tis one of the *Melié* Tribe, well taſted, and its Fruit a little pointed.

48. The *Bourdelais* is of three kinds, the white, the red, and the black, the Bunches of Fruit are very large, rather fit to make Verjuice or Sweetmeats than for eating. This Vine is the beſt we can uſe for graffing many kinds of Grapes upon; chiefly ſuch as are apt to degenerate, as the Damaſk Grape, and the Curran Grape, but it is better to graff the Muſcat Grapes upon Plants of their own Tribe.

49. *Le Teinturier*, i. e. the Dyers Grape, called alſo *Noirault*, and *Plant d' Eſpagne*, has its Fruit very much preſſed together upon the Bunches, and is of a very black Dye; its chief uſe is to heighten and colour the Wine,

and is of great Uſe alſo in the Cure of Wounds.

Thus far my Friend's Papers reach concerning the Vines chiefly admir'd in *France*. It would be well if we could reconcile our *Engliſh* Catalogues to thoſe of *France*, that we might not ſend to that Country for Sorts which we have already from Catalogues that may be impos'd upon us. I am pretty well perſuaded that few if any of the *Engliſh* Catalogues of Grapes are right, *Anno* 1724. I recommend the Care of our Catalogue of Fruits, for our Succeſs in pruning and dreſſing of Vines depends upon it; for all ſorts of Grapes are not to be prun'd alike, nor at the ſame Seaſon; and therefore without an exact Knowledge of the ſorts we ſhall run into Confuſion.

When I was in *France* about three Years ago, I was curious to obſerve their Fruits, and eſpecially their Grapes, which were the earlieſt ripe, and which ripen'd their Fruit beſt in the Vineyards, in the North Parts of *France*; that if poſſible, ſome of the South Parts of *England* might be ſucceſsful in Vineyards; tho' I confeſs, as far as my Judgment can determine, the Gentlemen of the Weſt may be ſaid to want no foreign Liquors ſo long as they enjoy the Nectar of their Orchards; but then when we conſider that it is not every where that Apples will proſper, and that in ſome Parts of the Weſt, there are Tracts of Land which are not yet cultivated, by Reaſon of the many Rocks and Quarries; I ſay ſuch Land will be greatly improv'd by planting of Vines, which will thrive there rather than in what we call rich Land, and give Wine where Cider may be wanting.

The ſorts of Grapes which I choſe for this End were three Kinds of *Melié* Grapes, ſome kinds call'd *Morignon* or *Morilon*, and ſome of the *Muniers*; I bought ſeveral hundred of theſe to be tranſported to *England*, with a Deſign at once to plant two or three Vineyards in divers Soils; but firſt the Carriage of them from *Paris* to *Roan* was tedious, and from *Roan* to *England*, near two Months elapſed before a Ship could be found to bring 'em to *London*; and then, which was worſe, the Difficulties they met at the Cuſtom-houſe, detain'd them ſo long, that hardly one in fourſcore had living Juices left in them, as I found to my Sorrow after they had been planted a Year: However there are ſome yet alive and proſperous; but 'tis from thence alone we muſt expect Increaſe; for 'tis not worth our while to be at the Expence and Trouble I have been at in bringing over ſuch things, without they could be readily brought on Shore. The ſame Year I had likewiſe, with a great deal of Trouble, collected ſeveral new Plants from the King's Gardens at *Paris*, and ſome other Places, which, in my Judgment, would have been in a few Years as ſerviceable to *England*, as any thing has appear'd in the Way of Gardening and Husbandry; but they were detained ſo long at *Dover* by the Cuſtom-houſe Officers, that when they came to *London* they were all deſtroy'd, and my Time and Expence loſt. Now, unleſs there can be ſome Way found out, which may allow free Paſſage for things of this Nature, which cannot bear Delays, I fear we ſhall make few Additions to our Plants in *England*, whether uſeful or curious.

Nor was this the only time I have ſuffer'd at this rate, for ſome time before, the States of *Am-*

*ſterdam* preſented me with above an hundred and fifty different ſorts of curious and valuable Plants, which were ſtrangers then in *England*; i. e. I had not ſeen them in any of our *Engliſh* Gardens of Note. Mr. *Fairchild* of *Hoxton* was my Correſpondent, but there was ſo much Difficulty to get them landed, that above two thirds of them were deſtroy'd: Now I ſay, could there be a free Liberty granted for bringing into a Nation ſuch things as Plants, which are periſhable if they are kept long on Ship-board, it might not redound a little to its Advantage.

## *Concerning the Improvement of old decay'd* VINES *in a Letter to a Gentleman in* Hampſhire.

SIR,

AS there is nothing more deſirable than gaining or ſaving of time to a Gentleman who is a Lover of planting, my Deſign in the following Directions is to put you into immediate Poſſeſſion of good Fruit; tho' I muſt confeſs, after Wall Trees have been in a Manner lawleſs for two or three Years, and have run at random without Controul, 'tis hard to bring them again to the good Diſpoſitions they enjoy'd, whilſt they were regulated by judicious Government; and the Vine eſpecially, which is a Plant that above all others is moſt inclinable to ramble out of Rule, if it be ſuffer'd to take its own Courſe, requires the Skill of the Gardener more than other Trees, to bring it into healthful Order; and in this our dreſſing and ordering it muſt be agreeable, partly to the Rules of Art, and partly to the Laws of its own Nature, for without both theſe Conſiderations we ſhall never bring it to that good Order we deſire.

We muſt know, firſt, that all Vines bring their Grapes upon Shoots of the ſame Year, and thoſe Shoots, as well as the Grapes they produce, are much fairer and better furniſhed, as they ſprout from large Shoots of the former; for thoſe which ſpring from the old black Wood are faint and weak, affording only ſmall Bunches of Grapes, that ripen later as they are more remote from the Earth: Therefore 'tis practiſed by the beſt Artiſts, to keep their Vines low, and lay the Branches for bearing as near the Ground as poſſible, by which means the Fruit is larger, and ripens much ſooner; but eſpecially, if we bury part of them in the Earth, ſo as they may take Root, for then they are doubly nouriſh'd, *viz.* from the Root of the Mother Plant, and from the Fibres which ſtrike out of the Layers; and we may yet help theſe young Shoots in their Growth, by laying little Balls of ſoft Soap for the Roots to ſtrike into.

In the Caſe now before us, the Vines may be brought into Method two Ways; firſt we muſt diſengage them from the Walls, and diſmember them of all the ſmaller Shoots, leaving only ſuch of the new ones as are as thick as one's little Finger, or the largeſt we can find of the ſame Year; which if they are ſtrong Shoots, we may prune to a Yard or more in Length, or leave them ſhorter in Proportion as they are leſs vigorous. When the Vine is thus ordered, dig up the Ground about it, and bend down the whole Vine as near the Earth as poſſible, making it faſt with ſtrong Hooks or Stakes, ſo that the Spring of the Body of the Vine may be curb'd in ſuch a manner, that it ſhall not at any time ſtir the young Layers, or draw them out of the Earth; for every Shoot after it has been prun'd as above directed, muſt be laid in the Ground two or three Joints at leaſt, and the Parts of them which riſe out of the Ground for bearing, be ty'd up to Stakes of four Foot long; for tho' perhaps, when you lay them down in *November*, they may not appear longer than a Foot above Ground, yet we muſt provide to tye up the young Shoots which will ſprout from them the following Summer; ſo ſhall we have a little Vineyard in one Year bearing Fruit, made out of one ſingle Plant, if it be large and well furniſh'd with Branches. And when the Fruit is ripe, we may cut the Layers from the old Vine, and place its Stem or Body with the ſtrong Shoots it has made that Summer againſt the Wall we took it from. In the time when we firſt lay down this Vine in the Earth, we may contrive to place a Layer or two near the Wall, ſo that they may remain there; and I think it would be well enough worth while to provide Pots for the other Layers to be drawn through, rather than lay them in the naked Earth, becauſe when they had ripen'd their firſt Fruit, we might remove them where we pleaſed, without hazard or any loſs of time.

The ſecond way I would preſcribe for the improving ſuch old unruly Vines, tho' they were grown very high, ſhould be to prune them as I have before directed; and where there happens to be proper Shoots for bearing at ſome diſtance from the Earth, they ſhould be drawn through Garden Pots faſten'd to the Wall in Iron Rings, and fill'd with Earth, which will haſten the ripening of the Fruit, and enlarge the Bunches, as well as if they were to grow near the Ground, and in effect nouriſh the whole Tree; for every part of it would partake of the Nouriſhment drawn from the Earth in the Pots, by the Roots of thoſe Branches growing in them: But to aſſiſt the rooting of theſe Branches they muſt be now and then refreſh'd with Water when the Seaſon is dry.

If we order a Vine in this manner, we are ſure of as many Plants as there are Pots. If we ſeparate them from the old Stock, or if we let them remain on the old Vine, they may well enough laſt three Years feeding on their Pot Roots, and the Mother Root; but we ſhould in the mean while encourage no other Shoots of the old Tree, but what ſprout from the rooted Parts in the Pots, unleſs we deſign to make freſh Pottings to ſupply the place of the firſt that are to be taken away.

To conclude: I recommend as a Trial, the graffing of one ſort of Vine upon another; which in my Judgment may be done two ways, but both of them muſt be done upon the green tender Shoots about the middle time of their Growth, and the Cions muſt be of the ſame Growth and Tenderneſs; the firſt done in the common ways of graffing, either to cut the Cion like a Wedge for the Cleft, or to ſlope the one ſide of the Stock Shoot, and fit the Cion to it with a Tongue; theſe I would have bound together with Worſted as tight as poſſible, without bruiſing either the Stock or Cion; and then with a mixture of Tallow, Bees Wax and Turpentine, equal Parts melted together, be thinly cover'd over with a large painting Pencil when the Mixture is not over hot.

The ſecond way is to inarch the tender Shoots of one into another, binding them and plaiſtering or anointing them as above; and this I think is much the ſurer way, and may be eaſily accompliſh'd, if we have any Vines rooted in Pots, as I have directed. If this way ſucceeds, beſides the pleaſure of ſeeing ſeveral ſorts of Grapes upon one Vine, we may propagate any ſort of Vine we like beſt, with the greateſt eaſe, and I believe, bring them to bear very ſoon. This graffing I think will do beſt in *June*.

I am, Sir,
Yours, *&c.*
*R. B.*

## *Obſervations concerning* Vineyards *and their Produce, with ſome Account of the Vineyard near* Bath.

SInce I find that what I have already ſaid in my former Writings, has had ſo much Influence over ſome *Engliſh* Gentlemen, as to diſpoſe them to undertake the planting of Vineyards with us; I ſhall in this Piece give my Readers ſome Obſervations I have lately made concerning their Improvement.

I ſhall begin with taking notice of ſome Particulars relating to the celebrated Vineyard near *Bath*, which has made ſo much Noiſe in the World: In the firſt place as to the Situation, it lies upon the ſide of a ſteep Hill, facing the South, the Ground very rocky or ſtony: In this place, the Vines are planted in Lines about ſix Foot aſunder, and are treated much after the manner that Vines are manag'd about *Germany*. The ſorts of Grapes here planted, are the white

Muſcadine, and the black Cluſter-Grape; and though they are not proper Wine-making Grapes, nor the moſt early in ripening, yet there was made ſixty-ſix Hogſheads of Wine four Years ago, from this Vineyard, which contains ſix Acres of Ground: But in the Year 1721, there was made, as I am inform'd, not above three Hogſheads, and the laſt Year, 1722, when I was there, *July* the 26th, the Vines were then hardly in Bloſſom, ſo that little could be expected from them that Year; but as there was then upon them a great deal of good bearing Wood, I ſuppoſe this Year they may produce a good Crop, eſpecially conſidering the extraordinary Summer we have had: It was indeed no ſmall Surprize to me to find the Vineyard Grapes at *Bath*, in that fine Situation, ſo late in Bloſſom, when there had been ripe Grapes above ten Days before at Mr. *Fairchild*'s at *Hoxton*, which ſtands upon a ſtrong Clay, and in a flat Country; and in Mr. *Warner*'s Vineyard at *Rotherhith*, the Grapes were then near fully grown, tho' they had not the help of ſo favourable a Situation; but as this was plainly ſo in fact, it was evident, that the Difference muſt proceed from the Sorts of Grapes, as well as from the Management of them; and when we come to compare the Quantity of Wine which the *Bath* Vineyard produc'd in one Year, *i. e.* ſixty-ſix Hogſheads, with the Quantity of Wine produc'd in Mr. *Warner*'s Vineyard, we ſhall ſtill find how much the Sort of Grape ſhould be conſidered, that we deſign to make Wine of: For it is experienc'd, that ſome Kinds of Grapes will yield near half as much more Juice as others, though we carry the ſame Meaſure of each to the Preſs, and as I take it, the black Cluſter-Grape yields the leaſt Juice of any; and then, if we compute an Hogſhead of ſuch Wine worth ten Pounds, as the *Bath* Wine was ſold for, then the ſixty-ſix Hogſheads at *Bath* would be worth ſix hundred and ſixty Pounds; but if the Grapes had been of a more juicy Kind, then the ſame Quantity of Grapes would have produc'd ſo much more Wine, as would have made it worth nine hundred and ninety Pounds, which is a vaſt Difference; tho' indeed no one would diſlike an Acre that will yield him yearly above an hundred Pound, as the *Bath* Vineyard would do with the above Quantity, if it would bear as conſtantly as Mr *Warner's* Vineyard, which has not yet miſs'd.

But that we may ſtill make the Compariſon more juſtly between theſe two Vineyards, I ſhall give my Reader an Obſervation or two, which I made this Year at Mr. *Warner's*, which, I am perſuaded, will give him a very agreeable Satiſfaction.

I obſerved in the firſt place, that an hundred Stands of Vines, two Plants to a Stand, in their firſt Year of bearing a Crop, at Mr. *Warner's*, made ninety five Gallons of Wine; and the ſmalleſt Bearer among thoſe Vines this Year, had upwards of ſeventy-five Bunches of Grapes, but many of them above an hundred Bunches apiece; and yet the bearing part of each Vine did not ſeem to fill much more Space than a Buſhel Meaſure; after this rate, then, an hundred Vines manag'd after Mr. *Warner's* way, at the loweſt Reckoning, *i. e.* ſeventy-five Branches to each Vine, will produce ſeven thouſand five hundred Bunches of Grapes; but then we muſt conſider what Proportion of Weight each Bunch will bear to one another, for there were ſome ſmaller, and ſome larger; ſo that I ſhall compute only ſixty Bunches upon each Vine, at one Quarter of a Pound Weight each Bunch, and then an hundred Vines will produce ſix thouſand Bunches of a Quarter of a Pound each, or about fifteen Pound Weight of Grapes upon each Vine. But that we might know what might be the Produce of theſe Grapes in Wine, I took an Opportunity to viſit Mr. *Fairchild*, who has great variety of Sorts of Vines for Vineyards, and with him try'd the following Experiment: We gather'd a Bunch of Grapes of the ſame Sort with Mr. *Warner*'s, from a Standard Plant; the Bunch happen'd to weigh juſt one Quarter of a Pound, and preſſing it as hard as we could between two flat Pieces of Wood, the Quantity of Juice which we expreſs'd from it, weigh'd two Ounces and an half, and meaſur'd above half a quarter of a Pint, which makes ten Ounces of Juice from one Pound of Grapes, which is after the rate of five Eighths in Juice, and three Eighths in Hulls: Now allowing Mr. *Warner*'s Vines to bear ſixty Bunches apiece, of one quarter of a Pound each, and each Pound of Grapes to produce ten Ounces of Wine; then a ſingle Vine bearing fifteen Pound Weight of Grapes, will yield of Wine nine Pints or Pounds, and ſix ſixteenthParts of a Pound, which makes one Gallon, one Pint, one quarter, and half quarter of a Pint; ſo then the Produce in Wine of one *hundred Vines*, will be *one hundred and ſeventeen Gallons, one Pint and half.*

Let us examine in the next place how many Vines a Vineyard regularly planted may contain in an Acre, or rather, how many Vines there ſhould properly be in a Vineyard of ſix Acres, which is the Dimenſion of the Vineyard near *Bath*, and then let us compute the Quantity of

Wine ſuch a Number of Vines will produce, according to the foregoing Calculation.

*Firſt*, Our Lines of Vines ſhould run North and South, and ſtand ſix Foot from one another, unleſs upon a Hill that is very ſteep, and then they may run Eaſt and Weſt; for as the Lines of Vines will ſtand one above another, they will then have the greater ſhare of the Sun, for they need not be kept above four Foot high; but however the Lines run, there ſhould be two Vines planted together in an Hole, and from the Centres of theſe Holes where the Vines ſtand, we ſhould allow ſix Foot; ſo then our ſix Acres will take up of Vines to plant them about fourteen thouſand five hundred Plants, or a ſingle Acre about two thouſand four hundred and ſixteen Plants, which if they are well prun'd and ordered, and no Froſts or Blight happen to take them, will produce of Wine, according to the above Reckoning, ſixteen thouſand nine hundred ſixty five Gallons of Wine in one Year; or a ſingle Acre, after that Rate, will produce in one Year, two thouſand eight hundred thirty two Gallons of Wine, which is forty four Hogſheads, ſixty Gallons. The Account then ſtands thus, at the Rate of ten Pounds *per* Hogſhead, each Hogſhead containing ſixty three Gallons: Two hundred ſixty nine Hogſheads, eighteen Gallons, the Produce of ſix Acres, at ten Pounds each Hogſhead, amounts to two thouſand ſix hundred and ninety Pounds; or forty four Hogſheads, ſixty Gallons, the Produce of one Acre, at *ditto*, amounts to four hundred and fifty Pounds.

Though I have been as exact as poſſible in this Calculation, yet that there may be no Room for Objection, let us ſuppoſe only ten Pounds of Grapes to each Vine, and we may then make about thirty Hogſheads of Wine from an Acre.

But then we are to conſider ſomething of the Expence of planting and keeping theſe Vines; the Ground we plant them upon cannot be worth above twenty Shillings *per* Acre, to reckon it at the higheſt; for the ſide of a Hill, rocky, or Chalk, or Gravel, or indeed any dry Soil will do, as I have before mentioned; and then there will be no Expence for dunging or manuring the Land, as may be found in my *New Improvements*, *&c.* in the Chapter of Vines: Only to a Vineyard, there muſt be allow'd an underſtanding Man, to prune, and direct, whoſe Wages I ſuppoſe twenty or twenty five Pound *per Annum*; and in a Vineyard of ſix Acres, he cannot have leſs than two or three Men under him to do the labouring Work at the proper Seaſons; but as Labourers have different Wages in different Countries, I ſhall not pretend to ſet their Price no more than the Rates of Wines, which for this Uſe, I find, are about twelve or fourteen Sorts, ſome of which bear much more Juice in proportion to the Bunches they are preſs'd from, than thoſe I have mention'd. While I am writing this, a Gentleman who does me the Honour of a Viſit, thinks the Wages of the Gardener who is to be employ'd as Maſter of the Vineyard, too much; but in anſwer to that, I only ſay, that if I expect Succeſs in any Work where an Artiſt ſhould be employ'd, I would always chuſe a good one, and ſuch an one will very well merit good Wages, becauſe 'tis from his real Judgment that the Maſter will receive Profit; whereas on the other hand, if we employ a Man of no Underſtanding, who may always be diſcover'd by his pretending to know every thing; though ſuch a

Man will ſerve us for nothing, we ſhall be Loſers by him; for unguided Management in a Garden brings all to Confuſion, and robs us of that Pleaſure which would be every way profitable to us. However, as the pruning of Vines for Vineyards has not fallen into every one's Way to ſee the Method of, I have prevail'd upon Mr. *Fairchild* to put about eight or ten Sorts of Vineyard Grapes into proper Order, for an Example to thoſe who are curious to ſee and obſerve the Manner of the Vineyard Management.

In this Calculation I have been as moderate as poſſible in my Account of the Profits, and have given ſeveral Allowances on that Side, which perhaps I need not have given; and tho' I have had an Objection made to the Wages I give the Artiſt for being too much, yet conſidering what Expence and Study an Artiſt requires to perfect him in his Art, as well as that he muſt be born with a ſovereign Genius, which no Man can give; ſurely the Man, who by his ſuperior Power of Thinking, which is the Reſult of all theſe, ought not to be upon the common Level of a Labourer; I don't ſay this to create Pride or Self-Conceit in the Perſons I am ſpeaking of; for if they ſhould happen to be ſo weak as once to fall into that Snare, they will immediately place themſelves in the Rank of thoſe who ought to be their Labourers; but 'tis for the Advancement of Art I do it, which notwithſtanding the Policy of the *Engliſh*, is not every Day promoted or encourag'd. In the Management of Vineyards, it has been generally thought, that the *French* are infallible in that Particular, but it is an Error which I believe a little Reaſon will ſet to Rights. In the firſt place we are to conſider, that all who profeſs Gardening with us, are not Men of the ſame Judgment; ſome will improve a Garden, while others will deſtroy it; and there are too many of the laſt ſort: Juſt ſo it is with the Vine-Dreſſers in *France*, where there is one that underſtands his Buſineſs, there are twenty that know nothing of the Matter; neither is it every Province in *France* that has Vineyards, nor are all the People there Vine-Dreſſers, no more than all the People in *England* Profeſſors of Gardening; therefore it would be very unreaſonable to conclude, that every *Frenchman* of courſe muſt underſtand the Management of a Vine, becauſe there are Vineyards in *France*; as well as to think that every *Engliſhman* muſt underſtand a Garden or an Apple-Orchard, becauſe we have Gardens and Orchards in *England*: And then again, in the making of Wine in *France*, there are as many different ways of Management, as there are different ways of making Cyder in *England*; ſo that unleſs one could know which would be the moſt agreeable, I think better to paſs by giving any ſingle Receipt, for to give them all would be an endleſs piece of Work.

It may be objected perhaps, that the Wine made in *England* may not always be worth ten Pound *per* Hogſhead, though that at *Bath* has been ſold for that Price; but if it was only to be ſold for half as much, I think there would be little Reaſon to complain of the Improvement, and the Charge of Vaults, Wine-Preſs, and Casks, might ſtill very well be paid out of it; or if the Wine was thought too ſmall, the beſt Brandy is always made of ſuch Grapes as produce ſmall Wine, as is very well known to moſt People of Curioſity, that have been in *France*.

As for rich Wines indeed, ſuch as the *Tokay*, *Muſcadell*, *Frontigniac*, and ſome others, I would not propoſe the making them in *England*, without the Benefit of Walls, for they will not ripen in the open Ground; but it is certain, for eating Grapes, I have hardly taſted better than at Mr. *Fairchild*'s Garden, which had only the Benefit of common Walls to ripen them; ſo that whoever has an Opportunity to give them their Aſſiſtance, may undoubtedly make good Wines from them; and truly, conſidering the vaſt Quantity of Juice they contain, and the Richneſs of the Wine they may produce, I know not but they may pay the Landlord very well.

## CHAP. II.

### *Of Pears; a Catalogue of the beſt Sorts, with their Deſcription, Culture and Time of ripening; with curious Obſervations relating to their Names and Qualities.*

THE following Papers, relating to the Culture of Pears, were put into my Hands by a very curious and experienced Gentleman; and I am perſuaded, will be of great Uſe to the Lovers of good Fruit, as well from the Directions given by him, for the Management of the ſeveral Sorts in the Garden, as the bringing them to the Table in the beſt Perfection; and tho' this, to the few who are unacquainted with Fruit, may not ſeem of very great Moment, or put them to queſtion, where is the Profit or what ſhall we gain by it?

I ſhall anſwer, That the Lovers of Fruit are too many to be ſet aſide; they are of all Ranks and Degrees; ſome have Will and Money to purchaſe it, others have their Profit by cultivating and ſelling it; ſo that I ſee no room to ſuppoſe, it will not be generally agreeable and uſeful: For if Men of Fortune will pleaſe their Taſte this way, they barter their Money for Fruit; and thoſe who labour to cultivate good Fruit, exchange their Fruit for Money; and it is certain, that whoever brings the beſt to Market, is the greateſt Gainer, which may encourage every one to aim at Excellence; and therefore, I think to adviſe publickly, what may be a publick Benefit, is not diſagreeable to common Senſe.

The great variety of Pears require abundance of Conſideration, more than any other Fruit: For altho' I do not take under my Obſervation the whole Catalogue of them, yet the good Sorts known to me are enough to fill a large part of my Papers; chiefly becauſe their Culture is not the ſame for every one. The ſeveral Species of theſe are of very different Qualities; ſome are melting or butter'd, according to the *French Beurrez*; others are crackling or juicy, and others more dry and odorous. They *come in*, or begin ripening betimes in the Summer, even in *July*: and from that Date we have Pears that are in Uſe all the Year; ſome of the late Winter Pears keeping well, till Nature ripens freſh Fruit for us.

## July Pears, *&c.*

THE moſt early Pears are ripe, or in eating, about the beginning of *July*. The little Muſcat, or *Sept en Guille*, as ſome of the *French* Gardeners call it, is the firſt ripe. 'Tis the beſt, and of a much richer Flavour than any of the little forward Pears, which are of ſeveral Kinds; and there ſhould not be wanting a few of them in a Garden, tho' they laſt but few Days. The little Muſcat brings its Fruit in Cluſters, much better in Eſpaliers than Standards, or the open Air.

The *gros Muſcat*, or great Muſcat, does not bring its Fruit in Cluſters like the former, but has the ſame Flavour. It is larger, and requires likewiſe the Aſſiſtance of a Wall.

*Le petit Muſcat bâtard*, or little baſtard Muſcat, is alſo call'd in *French*, *Poire Guenette*, or *Genetting*. It brings its Fruit in Cluſters, and bears well in any Situation; but has not the rich Flavour of the two former.

*Le Muſcat a longue Queue*, or long ſtalk'd Muſcat Pear, is a good Fruit and agreeable to the Eye. 'Tis pretty large, and is remarkable for its long Stalk. 'Tis a great Bearer.

*Le Bourdon muſqué*, or muskt Drone Pear, is a large early Muſcat. The Fruit is round, high flavour'd, and the Tree bears well. It muſt be eaten a little greeniſh, being ſubject to rot in the Heart when 'tis full ripe.

The Haſting Pear, or *la Poire Hativeau*, follows the Muſcat the firſt ripe; it bears a round yellow Fruit, of a pretty good Flavour; bears well, and ſhould be eaten before it is full ripe, for it quickly grows mealy, and rots like the other Summer Pears.

*Le gros Hativeau*, or great Haſting Pear, bears in Cluſters, and in abundance. The Fruit is yellow and red, finely painted. It will not keep, and is much better eaten a little green than full ripe.

*Le Hativeau blanc*, or white Haſting Pear; or as ſome *French* Gardeners call it *le Milan d'Eſté*, or the Summer *Milan* Pear, is large, whitiſh, and ſo melting, that it bears the Name in ſome Places of *Burée d'Eſté*, or Summer Burée.

*La Poire de la Magdelaine*, or Magdelain Pear, is almoſt round, rather green than yellow; of a pretty good Taſte, and large for a forward or Haſting Pear. It grows mealy even upon the Tree, if it be too ripe.

*La Belliſſime*, *i.e.* the faireſt, or *Figue muſquée*, *i. e.* the musked Fig-Pear, is large for a forward Sort; it is call'd *Belliſſime* for its great Beauty, being of a fine yellow ſtreakt with red. It has a rich Flavour. Its Wood is very large and ſtrong, and its Leaves round, and bigger than ordinary. It is alſo call'd by ſome *French* Gardeners, *bonne deux fois l'an*, *i. e.* good twice a Year; for it bloſſoms about *Midſummer* for a ſecond Crop, and brings that Fruit ſometimes to Perfection in *September* and *October*. *It may be, that it was call'd the Fig-Pear, becauſe of its bringing two Crops of Fruit in a Year, or at leaſt for its attempting to do ſo.*

*La Supreme*, *i. e.* the Supreme, or *Poire de Figue*, *i. e.* the Fig-Pear, or *Groſſe Jargonelle*, *i. e.* Great Jargonelle, or Giberiſh Pear. It is a large long Pear, of a reddiſh yellow, its Juice very ſweet, and not ſubject to be ſtony; it muſt not be over ripe for eating, for too much Ripeneſs makes it mealy.

*La Cuiſſe Madame, i. e.* the Lady's Thigh, is a good Pear, well known and admired. 'Tis a long Fruit, of a reddiſh grey when 'tis full ripe; the Fleſh is firm, and the Juice very ſweet; it will keep ſome time.

*Le gros & petit Blanquet, i. e.* the large and ſmall Blanket Pears are well eſteem'd. The ſmall Sort is by ſome called *Poire de Perle, i. e.* pearl Pear; they are of a rich Water, or their Juice, in other Terms, has a rich Flavour; they are both good, are yellow, and keep pretty well. The Tree has a good Appearance, ſhoots ſtrong, with very large Leaves. The large Sort is likewiſe call'd *la Muſette d'Anjou, i. e.* the *Anjou* Bagpipe.

*La Poire admiré, i. e.* the admired Pear, is round like that Sort call'd *Poire Ognonet, i. e.* little Onion Pear; its Juice is extreamly ſweet and high flavour'd, and is an extraordinary Bearer.

*L'admiré Joannet, i. e.* the admired little *John*, is leſs and longer than the former. It is ſo call'd, becauſe its time of Perfection is about St. *John*'s Day.

*L'admiré roux de Tours, i. e.* the admired Ruſſet of *Tours*, or *La Poire de Cypre, i. e.* the *Cyprus* Pear, is the beſt Pear of this Month, almoſt round, of a browniſh grey Colour. Its Fleſh is firm, and its Juice ſugar'd and richly flavour'd.

*La Poire d'Ambre, i, e.* the Amber Pear, or by ſome call'd *Poire a la Reyne, i. e.* the Queen's Pear, or Muſcat *Robert*, is a ſmall Pear, very yellow, and amber'd, ſhaped like the Muſcat, but larger. Its Flavour is extreamly rich, and 'tis a good Bearer; it makes a handſome Tree with yellow Wood.

*Le Rouſſelet Hatif, i. e.* the forward little ruddy, or Ruſſet Pear, named alſo *Perdreau muſquée,* *i. e.* the musked Partridge, is very like the common Rouſſelet, and is nearly as good, its Juice being very delicious.

Memorandum. *I obſerve, that the Pears mention'd by Mr.* Merlett *for* July, *come little later with us, than they do about* Paris; *there is hardly more than ten Days Difference.*

## Auguſt Pears, *&c:*

IN *Auguſt* the following Pears are fit for eating; *viz.*

*La Poire d'Eſpagne, i. e.* the *Spaniſh* Pear, or by ſome *French* Gardeners is called *Poire de St. Sanſon*, that is, St. *Sampſon*'s Pear; it is large, long ſhaped; yellow, and melting; it bears abundantly, and ſhould be gather'd before it is ripe, to give it its *beuree*, or butter'd Quality. This Pear in ſome Places is alſo call'd *Groſſe Cuiſſe Madame*, *i. e.* Great Lady's Thigh, and at *Orleans* is named *Poire de Beau preſet*, *i. e.* a Pear worthy to be preſented.

*La Jargonelle* is long, rediſh, and not ſo long as the former; it is a little dry and ſtony, but has a good Flavour, the Juice being rich and high taſted.

*Le parfum de Pan, i. e. Pan*'s perfumed Pear, is pretty large, rather long than round, like the Pear call'd in *French Sucrée vert*, *i. e.* green ſugar'd Pear. Its Juice is extreamly ſweet and rich in Flavour.

*La Poire de Jaſſemin, i. e.* the Jeſſamine Pear, or *Vilaine de la Reele*, is of midling Size, ſomewhat longer than round; its Juice is rich, but the Fruit is ſubject to be ſtony.

*La Groſſe Moüille bouche, i.e.* the Great-mouth Water-pear, or *Coule Soif, i. e.* Quench-thirſt, or as ſome other *French* Gardiners name it, *le Franc-Real d'Eſté*, is a large round Pear, greeniſh and melting; of a pretty good Taſte; but grows mealy if it is not gather'd a little before 'tis ripe; the Stalk is thick and ſhort, 'tis a good Bearer.

*La Chair d'Adam*, *i. e.* *Adam*'s Fleſh, or *la Poire de Prince*, *i. e.* the Prince's Pear, is not unlike the Rouſſelet; it has a Roſe-water'd Juice, very high flavour'd; bears well, and may be kept long enough without rotting, which is too generally the Fault of the Summer Fruits.

*La Vallée*, *i. e.* the Valley-pear, or *Poire de Liquet*, *i. e.* juicy Pear, is watty, and ſomewhat harſh now and then, ſo that it is not now ſo much in eſteem as it has been formerly.

*La Poire a deux teſtes*, *i. e.* the double-headed Pear, is crackling, and full of ſweet Juice, will keep and ripen well after 'tis taken from the Tree; its Fruit grows very large and good upon Dwarfs.

*Le gros & le petit Ognonet*, *i. e.* the great and ſmall Onion-pears, are musked and high flavour'd, round, flat and yellow ſhaped ſomewhat like Onions; they are ſubject now and then to be ſtony, but are excellent Bearers.

*Le gros Rouſſelet de Rheims*, *i. e.* the great Rouſſelet from *Rheims*, is generally allow'd by all to be one of the beſt Summer Pears: It is butter'd and melting, with a musked Flavour, and brings much larger and fairer Fruit in Eſpalier than in open Ground.

*Le petit Rouſſelet*, *i. e.* the ſmall Rouſſelet, is greyer and more ruſſet than the former; it does not rot ſo ſoon, and brings its Fruit to good Perfection in a Standard, and by that Method keeps longer, and is better taſted: This Fruit is ſo much coveted, that we plant it in all manner of Expoſitions, to preſerve it the longer among us. It is call'd about *Anjou*, *le Girofle*, *i. e.* the Clove-pear.

*La Poire Sanguinaire*, *i. e.* the Bloody-pear, is rather a Curioſity than valuable at the Table; it is ſomewhat like the Valley-pear aforementioned, but is red within-ſide quite to the Core: It ſhou'd be gather'd before it is ripe, for it is of very ſhort Continuance.

*La Poire de Franchipane* is ſmall, green and longiſh; its Juice is extremely ſweet and delicate.

*La Caſſolette*, *i. e.* the perfum'd Pear, or *Friolet*; or in *Poitou* it is called *Muſcat verd*, *i. e.* green Muſcat; in *Anjou* it is named, *la Verdette*, *i. e.* the green Pear, or *la Poire de Taſte Ribaut*; it is long and greeniſh, with a musked Juice, 'tis a great Bearer, and makes a fine Tree; and tho' it is a crackling or brittle Pear, its Fleſh is tender: It keeps pretty well for a Summer Fruit.

*La Poire d'Admiral*, *i. e.* the Admiral-pear, is reddiſh, rather flat than long, it is very juicy, with a delicate tender Fleſh; bears well, and is never ſtony: 'Tis highly eſteem'd.

*La Poire de Lombardie*, *i. e.* the *Lombardy*-pear; or by ſome *French* Gardiners *la Poire de Milan*, *i. e.* the *Milan*-pear; is large, long, and of a high musked Flavour, being gathered in time a little before 'tis ripe: 'Tis a good Pear with a ſugar'd Juice.

*La gros Blanc*, *i. e.* the great White, is a large Pear, long and ſlender towards the Stalk, and pretty big about the Head: 'Tis white and very melting; it ſhould be eaten a little before it is ripe, for it decays quickly; the Tree is handſome, with large Shoots and very large Leaves.

*L'Odorante Muſquée*, *i. e.* the Musk Smelling-pear, call'd in ſome places *Poire de Baume*, *i. e.* the Balm-pear; likewiſe, *Poire d'Amidon*, *i. e.* the Starch-pear; or elſe, *Poire de Fourmi*, *i. e.* the Piſmire-pear, and alſo, *Verge d'Or*, *i. e.* Golden Rod; it is longiſh, very yellow, dry, and highly perfum'd.

*La Brute bonne*, *i. e.* the good Brute, is thus called, becauſe of the Coarſeneſs of its Fleſh; but 'tis very juicy, ſweet, and high flavour'd: 'Tis a green Pear, and ſhould be eaten betimes; its Wood and Leaves are whitiſh and farinacious or powder'd.

*La Bergamotte d'Eſté*, *i. e.* the Summer-Bergamy, or Bergamotte, is called by ſome, *Bergamotte de Milan*, *i. e. Milan* Bergamy; and *Bergamotte de la Beurriere*, *i. e.* the Butter-woman's Bergamy; 'tis a large green Pear, ſoft and melting; it is in many reſpects like the Autumn Bergamy, and has its Particularities which are excellent.

*La Foſſe Muſquée*, or *la Bergamotte Greque*, *i. e.* the *Greek Bergamot*; which in *Anjou* they call *la Poire de Violon*, *i. e.* the Fiddle-pear; is almoſt round, yellow, and a great Bearer: It is one of the beſt Pears for plenty of Juice and rich Flavour.

*L'Inconnue Cheſneau*, or *la Fondante de Breſt*, *i. e.* the Melting-pear of *Breſt*, is rather long than round: Its Juice good and rich, an extraordinary Bearer, and in ſome things reſembling the double-headed Pear, or *Poire a deux teſtes*; which is rather rounder and leſs red than this; it is ill named a melting Pear, for its Fleſh is rather brittle or crackling, than butter'd and melting.

*La Griſe bonne*, *i. e.* the good Grey Pear; or *la Poire de Foreſt*, *i. e.* the Foreſt Pear; alſo call'd *la Crapaudine*, *i. e.* the Toad-ſtone Pear; or elſe *l'Ambrette d'Eſté*, *i. e.* the Summer Ambret; and likewiſe it is named *la Rude Epée*, *i.e.* the ſharp Sword-pear, becauſe of its prickly Wood; the Fruit is of the Pear make, neither long nor round, it is of a greyiſh Colour, a little butter'd or melting, the Juice ſweet and pleaſant.

*Le Muſc d'Eſté*, *i. e.* the Summer, Musk-pear, otherwiſe call'd *le Muſcat de Savoie*, *i. e.* the *Savoy* Muſcat, or *Poire aux Mouches*, *i. e.* the Fly-pear, or *l'Ognon de Vernon*, or *Vernon's* Onion-pear, is a kind of red Orange-pear, leſs round than long; it is large and beautifully colour'd with yellow and red, it laſts a long time.

*Le Poire d'Orange*, *i. e.* the Orange Pears, are of ſeveral Kinds; *l'Orange Commune*, *i. e.* the common Orange Pear, is ſmall and greeniſh; *l'Orange Royalle*, *i. e.* the Royal Orange-pear, is an handſome large Fruit, and very good; *l'Orange muſquée*, *i. e.* the musked Orange-pear, is of a flatter Make, and ſhould be eaten before it is full ripe, for it is very ſubject to rot at the Heart; and ſo the other Orange-pears ſhould not be ſuffer'd to hang too long upon the Tree before they are eaten, for they loſe their Goodneſs.

*La Poire de Lichefrian*, is longiſh, and of a ruſſet grey, a great Bearer, and is ſoft and melting.

*La Poire d'Eau Roſe*, *i. e.* the Roſe-water Pear, or by ſome called *Caillo-roſet*, *i.e.* the curled Roſe Pear, is grey and round, the Stalk very ſhort, and the Juice ſweet, and of a Roſe-like Flavour.

*Le Muſcat d'Aouſt*, *i. e.* the *Auguſt* Muſcat, is call'd *la Poire d'Avarat*, *i. e.* the Averat Pear, or *Poire d'Robine*, or *Poire de la Honville*, *i. e.* the Hanville-pear, or *Poire Royalle*, *i. e.* the Royal-pear, is flat and round, and has a hard Fleſh. The Fruit comes in Cluſters, and is of an high musked Flavour, and one of the beſt: There is the great and ſmall of this Sort. There is harder and dryer than the large kind, which has the richeſt Musk of any Pear.

*Le parfum d'Aouſt*, *i. e.* the *Auguſt* perfumed Pear, or *la Poiré de Berny*, *i. e.* the Berny-pear, is longiſh, large, and of a good Taſte. It is greeniſh and ſpotted.

*La Cramoiſine*, *i. e.* the Crimſon Pear, is a ſmall Pear, a little longiſh, ſomewhat like the Blanket Pear, but thinner; the Juice is very ſweet, and 'tis a great Bearer.

*Le bon Chrêtien Muſquée*, *i. e.* the musked *bon Chretien*, or good Chriſtian, or *Poire ſans peau*, *i, e.* the Pear without Skin, is rounder and ſmaller than the Summer Sort; its Skin is yellow, and its Fleſh pretty hard; it is one of the beſt Pears, and the moſt in Eſteem; its Juice very ſweet and delicious. It muſt be graffed upon a free Stock, for it ſeldom comes to any thing upon the Quince, and is ſo fickle, that even though it is graffed upon a Pear or free Stock, it laſts but few Years; it thrives better from a Bud than from Cleft Graffing, for the Cion languiſhes till the Inciſion is intirely recover'd.

## September Pears.

IN *September* the following Pears are fit for the Table, *viz. le bon Chrêtien d'Eſté*, *i. e.*

the Summer *bon Chretien*, or by ſome call'd *Gracio-li*, *i. e.* the delicate Pear; it is a large yellow Pear, with tender Fleſh, full of fine ſugar'd Juice, of a longiſh Make; 'tis a pretty good Bearer, chiefly about the tops of the Branches, which ſhould not be cut off in more than from thoſe Trees which bear in the ſame manner.

*La Poire de Salveati*, is pretty large, round, and flat, a Stalk long and ſlender; its Fruit is fair and handſome, of a fine yellow; 'tis melting, and will keep pretty well; it is one of the ſweeteſt Pears, and may be reckon'd among the beſt.

*La Chambrette*, *i. e.* the *Chambrette* Pear, is large and longiſh, with a very agreeable melting Fleſh; 'tis ſo named, as being firſt brought among us by the Marquis of *Cambray*, the Author of the *Virgouleuſe*; ſome call it *la Chambrette d'Hyver*, *i. e.* the Winter *Chambrette*.

*La Poire d'Ange*, *i. e.* the Angel Pear, is ſomewhat like the *Salveati*; it is flatter and more melting, but has not ſo rich a Flavour, nor quite ſo ſweet a Juice.

*La Poire de mon Dieu*, *i. e.* the God's Pear, is an handſome Fruit, and pretty good, of a yellowiſh red, and juicy enough, not ſubject to be ſtony; it is a very good Bearer, and the Pears ripen upon the Tree at ſome diſtance of Time from one another.

*La Poire de Roſe*, *i. e.* the Roſe Pear, has a large round Fruit, of an Onion Make; its Stalk is very long and ſlender, its Fleſh is a little hard, it has a Roſe-water'd Juice, and very good.

*La Verte longue*, *i. e.* the long Green Pear, is alſo call'd *Moüille bouche d'Automne*, *i. e.* the Autumn *Mouille bouche*, or Autumn Mouth-water'd

Pear; its Fruit is long and of a green colour when it is ripe, is very melting, and of a very rich Juice, eſpecially when it grows in ſuch Land as is rather dry than wet; it thrives better upon a Quince Stock.

*La Verte longue Suiſſe*, *i. e.* the long Green Pear of *Switzerland*, or *Poire panachée*, *i. e.* the ſtreak'd or ſtrip'd Pear, has the ſame Qualities with the former; its Wood is mark'd with yellow and green, and its Fruit a little ſtrip'd, and even ſome of its Leaves. I found this Fruit at *Baudeville*, where it was in great Eſteem, and a Rarity.

*Le Beurée Rouge*, *i. e.* the red *Beurée*, or red Butter Pear; it is call'd likewiſe by ſome *French* Gardiners *Beurée d'Anjou*, *i. e.* the *Anjou* Butter Pear; ſome name it *Poire d'Amboiſe*, *i. e.* the Amboiſe Pear. In *Normandy* it is call'd *Iſambert le bon*, or the good Iſambert; it is a large Pear, long, but not pointed, well colour'd; it is ſo butter'd and melting, that it well deſerves its Character of *Beurée*; its Juice is ſugar'd and high flavour'd, and it ripens off the Tree like the other *Beurées*, which ſhould be gather'd before they are quite ripe: 'Tis the beſt Pear of this Seaſon, as the Rouſſelet is of Summer Pears, and the *bon Chretien* of the Winter.

*Le Beurée gris*, *i. e.* the grey *Beurée*, or grey Butter Pear, comes later than the former, and is tart and more melting; but the green *Beuree* is the leaſt melting of any of the Butter Pears, its Juice more flat, and its Flavour leſs rich. To keep the *Beuree* a long time in eating, we muſt let them hang upon the Tree till they drop, and plant ſome Trees of them againſt a Wall, to the Weſtern Aſpect.

*Le Beurée blanc, i. e.* the white *Beuree*, or by ſome *French* Gardiners call'd *Beurée a courte queuë, i. e.* the ſhort ſtalk'd *Beurée*, but moſt commonly call'd *Doyenné*, or the Dean's Pear, alſo *Poire de St. Michel, i. e.* St. *Michael's* Pear, or Michaelmas-pear; by ſome again, it is call'd *Poire de Neige, i. e.* the Snow-pear, or *la bonne Enté, i. e.* the good Graft; it is fair, large and a good Fruit, of a Citron Colour, and is by ſome call'd *Poire de Citron, i. e.* Citron or Lemon-pear; 'tis very melting.

*Le parfum d'Aouſt, i. e.* the perfumed *Auguſt*-pear, and the *Brute bonne*, are likewiſe in eating, part of this Month.

## October Pears.

THE following Pears are fit for eating in *October, viz.*

The *Meſſire Jean*, is of ſeveral Sorts; there is the White, the Gilded, and the Grey; the white Sort ripens firſt, has its Fleſh more tender than the others, and its Juice leſs ſugar'd; its Whiteneſs ſeems to proceed from ſome Diſtemper in the Tree; for when the Tree is very vigorous, the Fruit is better colour'd.

*Le Meſſire Jean dore, i. e.* the Gilded Monſieur *John*, has a more richly ſugar'd Juice than the former, and is not ſo ſubject to be ſtony as the Grey Sort, which comes later, and will keep pretty well, and has an extraordinary rich Juice; this is one of the beſt and moſt ancient Fruits, is in eating all the Autumn Seaſon, when People are, for the moſt part, in the Country; and therefore one ſhould have Plenty of 'em; the firſt of theſe is corruptly call'd, in ſome Places in *England*, the *John Dory*.

*La Poire de Vigne*, *i. e.* the Vine-pear, by ſome call'd *Damoiſelle*, *i. e.* the Lady's Pear, and alſo *la Longe queuë d'Anjou*, *i. e.* the *Anjou* Long-Tail; it is round, of a greyiſh brown Colour, very melting, and of an excellent rich Juice; the Stalk is extraordinary long; the Fruit ſhould be gather'd before it be full ripe, otherwiſe it grows mealy and ſoon rots.

*La Bergamotte d'Automne*, *i. e.* the Autumn Bergamot, is a pretty large green Pear, a little rough coated, of a flat Make, and very melting; it ripens after 'tis gather'd from the Tree, and then changes its green to a yellowiſh Colour; it keeps pretty well.——To bring this Fruit fair and good, and make the Tree give us good Wood, and conſequently good Fruit, we muſt expoſe it to the riſing or ſetting Sun, and by no means to the violent Heat of the South Sun, which would canker the Wood, and make the Fruit ſmall and full of Cracks. It ſeldom anſwers our Expectations upon Dwarfs; but in that Caſe the Shoots muſt be prun'd long, if we expect our Wood well nouriſh'd and profitable; 'tis one of our beſt Fruits, but we ſeldom find enough Trees of them in the Fruit Gardens. The Autumn-pears ſhould always be more in number than the others, becauſe its Fruit is almoſt half our Diet, and is wholſome. We ſhould plant ſome of this Kind of Bergamot to the Setting Sun; the Juice, indeed, will be leſs perfumed, but the ſweet or ſugar'd Taſte, which is the Glory of moſt Winter Fruits will make good the want of the high Flavour. The Water, or Juice of the Bergamot, is the coldeſt of all Fruits.

*La Bergamotte Suiſſe*, *i. e.* the Bergamot of *Switzerland*, is ſcarcer than the others; it is a flat made Fruit and very melting, ſtreak'd with green and yellow, and its Wood the ſame; it bears well and covets a Wall, but little Sun. This Pear is no leſs good than curious, and is the forwardeſt of the Bergamots, and the very beſt.

*La Bergamotte Muſqué*, *i. e.* the muſk'd Bergamot, or *la Poire du Colombier*, *i. e.* the Dove Pear, or *Poire de Sicile*, *i.e.* the *Sicilian* Pear, or *le petit Muſcat d'Automne*, *i. e.* the little Autumn Muſcat, is a ſmall dry Pear, very high flavour'd, a great Bearer, and makes an excellent Sweetmeat.

*La Bergamotte bâtarde*, *i. e.* the baſtard Bergamot, is large and flat, ſtreak'd with Grey, bears like Ropes of Onions, its Fleſh brittle, of a pretty good Water, and ſhould be gather'd a little before it ripens.

*La Bergamotte tardive*, *i. e.* the late Bergamot, or *Bergamotte de Pâgues*, *i. e.* the Eaſter Bergamot, is more in Eſteem than the former, becauſe of its long keeping, tho' its other Qualities are the ſame; it is very common in *Anjou*, but very rare about *Paris*.

*La belle & bonne*, *i. e.* the fair and good Pear, is a large Pear, long and pointed, of a greyiſh red; the Fleſh is tender and delicate, but muſt be eaten juſt in Time, for it preſently decays.

*Le petit Oing*, *i. e.* the little Lard Pear, is of a middle Size, almoſt round, but of unequal Shape, rather green than yellow; it is one of the moſt melting delicate Pears, and bears very well.

*Le Beſi d'Hery*, *i. e.* the Wilding of *Hery* Foreſt, is a round, yellow, rough coated Pear, of a middle Size, better baked than raw, having a Fennel-like Flavour, which is good in baked

Pears. It comes from the Lower *Brittany*, from the Foreſt of *Hery*, from whence it took its Name. *Beſy* or *Beſier*, ſignifies Wilding in *Brittany*, *Normandy*, and ſeveral other Provinces.

*Le Chat brulé*, *i. e.* the burnt Cat, otherwiſe call'd *la Pucelle de Xaintonge*, *i. e.* the *Xaintong* Virgin, is a little longiſh and pointed, very brown, melting, and of a rich Water; it preſently grows mealy.

*Le bec d'Oye*, *i. e.* the Gooſe-bill-pear, commonly call'd *le Martin Sec de Bourgogne*, *i. e.* the *Burgundy* dry Martin-pear, is a ſmall Pear, almoſt round, of a reddiſh brown; its Stalk is thick and long, it is a little melting, and is well taſted.

*La Poire de St. Denis d'Angers*, *i. e.* St. Denis of *Angers* Pear, is large, fair, long, and yellow; its Fleſh is brittle and crackling, and its Juice richly ſugar'd; it is much eſteem'd about *Anjou*.

*L'Amadote*, *i. e.* the Amadot-pear, is flat ſhaped, yellow, a rough Coat, dry and high flavour'd; it is ſo call'd from being found firſt in a Wood in *Burgundy*, belonging to the Lady *Oudotte*; when it was wild its Wood was full of Thorns, but by cultivating it upon Quince Stocks, it loſes its Thorns, tho' upon free Stocks it retains them; but yet upon the free Stock the Fruit is preferable; it has more Juice, and is more melting, and may be placed among the beſt. This Fruit, as well as other dry and perfum'd Fruits, are much better upon dry Soils than upon wet and moiſt Land; the latter bringing large, but watry and inſipid Fruit. Chiefly it ſhould be obſerv'd, that all of the melting or butter Pears, which ſeldom are very high flavour'd, ſhould be planted in light Soils; and it has been an Obſervation

vation worthy Notice, that the *Beuree* Pears, or thoſe that are melting like the Thorn-pear, *l'Echaſſerie*, *&c.* are greatly improved by Graffing them upon the *Amadotte*; for the Juices or Sap of the *Amadotte* is musk'd and richly flavour'd; and the *Beurees* or melting Pears which are graffed upon it, are perfumed by it.

*Poire St. Francois*, *i. e.* the St. *Francis*-pear, is very large, long, and yellow; it bakes very well, but is rather too harſh to eat raw.

*Poire de Ronville*, *i. e.* the Ronville-pear, is large, long, and green; but grows yellow in ripening; it bakes well, but is extream good roaſted in Wood Embers.

*L'Epine Roſe*, *i. e.* the Thorn Roſe, is of two Sorts, the earlieſt ripe is rather long than round and brings a fair large Fruit, intermixt with yellow and grey; it has a ſtrong roſy Flavour. The latter Sort is ſomewhat like the *Portail*, or Gate-pear; it is flatter, and has leſs of the roſy Flavour than the forward Kind.

*Poire de Lanſac*, *i. e.* the Lanſack-pear, is alſo call'd *la Dauphine*, *i. e.* the Dauphin-pear, comes from a Village named *Haze*; it is a ſmall, round, yellow, rough Pear, and one of the moſt melting Sorts: 'Tis eſteem'd one of the beſt. It holds fit for eating a long time, even till *January*, if they are gather'd late; for they will hang upon the Tree after the Leaves are fallen, and till the hard Froſts begin; it is likewiſe call'd *Franchipane d'Autumne*, *i. e.* Autumn Franchipan, becauſe of its rich ſugar'd Juice, but better known by the Name of Dauphin Pear. *Madame de Lanſac*, who was Lady of *Hazè*, was Governeſs to the Dauphin of *France*, afterwards *Lewis* the Fourteenth, and in that Time it was named the Dauphin-pear.

## Pears *good in* November.

IN *November* is fit for eating the *Virgouleuſe*, which came from the Village call'd *Virgoulee*, near *Limoges* in *France*, of which place the Baron of *Chambray* was Lord; ſo that in that Country it is called the *Chambrette*; it is a large long green Pear, which grows yellow in ripening; it is one of the firmeſt *Beurees*, and very good; it laſts fit for the Table a long Time, but muſt not be kept cloſe nor laid upon Deal-boards, or Straw, no more than the other *Beurees*, or melting Pears, which are apt to take the Taſte from any thing they touch: But they may ſafely be laid upon Shelves made of Oak, or cover'd with Plaiſter of *Paris*; or elſe if we have any particular Flavour which we would give them, we may perfume Skins of Leather to our liking, and lay theſe Pears upon them, they will ſoon take the Scent we deſign them. The Tree is one of the faireſt of all the Pears, as well for the fine Verdure of its Leaves, as for its plenty of Sap, which puſhes forth large and vigorous Shoots; therefore where a Tree dies or languiſhes, plant a *Virgouleuſe* in its place, and it will ſoon fill the Vacancy: However one may have too many of them; but what I ſay is only to inform a young Gardiner, that the *Virgouleuſe* will ſooner make good a Deficiency in a Plantation, than any other good Pear that I know of.

If we gather this Fruit before it is ripe it is apt to wither; it rather chooſes to be cultivated as a Dwarf than in a Standard, for the Fruit is very tenderly join'd to the Tree, and a little Wind breaks it off; and if it hangs too long upon the Tree, it loſes of its Excellence, and hardly is brought to melt, but it laſts longer.

We may treat this ſort in Eſpaliers, or againſt Walls lying to the Eaſt or Weſt Sun, but never to the South, which makes the Tree turn yellow, and cracks the Fruit, neither will the Fruit keep.

There is one ſort which is very rare, the Wood is red, and the Fruit of the ſame Colour; it is fit for eating ſomewhat later than the other, and laſts good till *February*. It has the ſame Qualities of the other *Virgouleuſe*, except that 'tis leſs melting or butter'd. We ſhould graft this rare ſort upon the common *Virgouleuſe*, if we expect the Fruit large and in good Perfection.

*L'Ambrette*, *i. e.* the Ambrette, is a round Pear, of a greeniſh grey Colour, in ſtrong ſtiff Ground, but is whitiſh in ſandy Land; it is very melting, and of a rich Water. I eſteem it one of the beſt Pears, though it is a Wilding, as one may diſcover by its thorny Wood. It brings better Fruit, being graffed upon the Quince than upon the free Stock; the latter ſubjecting the Fruit to be ſtony, and of a greener Colour than the other, as it retains more of the Wilding; but the Quince Stock ſoftens and rectifies it; this Fruit is in high Eſteem every where.

*Le Marquiſs*, *i. e.* the Marquis, is a large green Pear, which grows yellow in ripening. It is in many things like the Winter *bon Chretien*; its Stalk is long and ſlender, and its Fleſh very melting and butter'd, its Juice ſweet and richly musked, ſomewhat ſugar'd like the Water of the *Meſſire Jean* Pear; it makes a good Tree, and bears well; and the Sap is ſo vigorous, that 'tis always well furniſhed with Wood; this Pear is one of the beſt.

*La Poire de Malth*, *i. e.* the *Malta*-pear, is by ſome call'd *Poire de Pretre*, *i. e.* the Prieſt's Pear, is almoſt round, ſtreak'd with grey and brown; its Stalk is thick and ſhort; its Juice ſweet, and of a Roſe-like Flavour; it holds a long while in eating; and tho' the Fleſh be crackling and brittle, 'tis tender and delicate.

*La Poire d'Epine*, *i. e.* the Thorn Pear, is green, and almoſt of an oval Figure; it has a little ſwelling near the Stalk, which renders that a little fleſhy. It turns yellow in ripening, and is very melting and high musked. I think it one of the beſt melting Pears we have; eſpecially if it be upon a free Stock, for upon the Quince the Fruit ſoon decays. Why it is call'd the Thorn Pear, I can't conceive, for there are no Thorns upon the Tree; the *Ambrette* might rather deſerve that Name, whoſe Wood is very thorny.

By Experience I find the Fruit is much better in light ſandy Ground, than in flat heavy Land; for in the latter, 'tis always watry and inſipid; and in that Caſe we ſhould put Sand about the Roots, rather than Dung; for I find, that Sand ſo apply'd gives the Fruit a rich Flavour. We ſhould likewiſe do the ſame to Peach-Trees, Fig-Trees, and ſome others, when they are planted in heavy Ground; for though in a ſtrong Soil they bear large Fruit, it is ſeldom good for any thing.

*L'Ebergement* is a large Pear, very like the *Franc-real* in Fruit, Wood, and Leaf, and might juſtly be named the *Franc-real Beuree*. Its Juice is ſweet, and it is a great Bearer, bringing its Fruit the length of the Shoot, or like Ropes of

Onions: This does much better upon a free Stock, than upon the Quince; for upon the latter it is ſoon mealy, and ſhould rather be eaten a little green than ripe. We ſhould obſerve, that thoſe Fruits which are ſubject to rot ſoon, or grow mealy, are much mended by Graffing upon free Stocks; for the Quince, which brings a dry harſh Fruit, communicates its Harſhneſs and Dryneſs to the Fruits graffed upon it; and likewiſe ſuch kinds of Fruit ſhould be gather'd ſooner than others, before the Sap ſlackens in its Motion, for then the Fruit dries and rots ſooner than thoſe which have had leſs Time upon the Tree.

*Louiſe-Bonne* is a large Pear, of a very long Make, and of a Pearl-like Figure: 'Tis whitiſh and very melting, if we do not eat it too ſoon. It comes from *Poitou*; the Lady of which place was named *Louiſe*, and had ſo great an Eſteem for this Fruit, that it was call'd the *Louiſe-Bonne*, or Good *Louiſa*.

*Le Martin-Sec de Champagne*, *i. e.* the *Champagne* dry Martin-pear, is rather long than round, well colour'd, and ſtreak'd with red and grey. It has a ſugar'd and high flavour'd Water, but is a little ſubject to be ſtony. It bears abundantly, and is in eating about three Months. 'Tis in high Eſteem every where.

*Parfum d'Hyver*, *i. e.* the Winter perfumed Pear, is an excellent Pear for baking; 'tis large, round, and well coloured with yellow. 'Tis a good Bearer.

*Citron muſquée*, *i. e.* the musked Lemon, or Citron Pear, is almoſt round, finely colour'd with yellow and red, very high flavour'd and a little dry; but 'tis to be watch'd and taken when it begins to ſmell, for then its Water is more delicate and ſoft to the Palate. It is better in moiſt Grounds, than in dry ſandy places, as are moſt of the dry perfumed or musked Pears.

*La Poire de Jalouſie* is large, and reſembles the pound Pear, but is yellower and more pointed towards the Stalk; its Fleſh is ſo melting, and its Water ſo richly ſugar'd and perfum'd, that with good Reaſon it may be ſaid to excite Jealouſy among the Pears of this Seaſon, as its Name intimates. It ſhould not be too ripe when 'tis gather'd, for elſe it would be too melting, and keep little; for moſt of the melting Pears rot quickly, if they hang too long upon the Tree. This ſort upon the free Stock keeps a long time; but when it is graffed upon a Quince Stock, the Fruit ſoon decays.

*Le Bezy de Quiſſoy*, is a little Pear, almoſt round, very brown and melting. It was firſt found in the Foreſt of *Quiſſoy* in *Brittany*, where it is call'd Ruſſet, or *petit Beurée d'Hyver*, *i. e.* little Winter *Beurée*. Its Water is extreamly rich and vinous, preſerving ſtill ſomething of the Wilding it was taken from; 'tis an extraordinary Bearer, and brings its Fruit in Cluſters.

*Le parfum d'Autumn*, *i. e.* the Autumn perfum'd Pear, is pretty large and long; 'tis very much musked and high flavour'd for one of the *Beurée* Race, or ſuch as have a melting Fleſh.

*Le Saffron d'Hyver*, *i. e.* the Winter Saffron Pear, is by ſome call'd *Orange de St. Lo*, *i. e.* St. *Lo* Orange Pear; the Fruit is large and round, of a grey Colour, and its Fleſh very melting, and of a yellow Colour; it laſts good a long time, is well eſteem'd, and bears very well. It does better upon a free Stock than upon the Quince.

*La Rouſſeline*, is very like the *Martin-Sec de Champagne*, or *Champagne* dry Martin-pear, but is a little more pointed, and yellower. The Stalk is very long and ſlender, like that call'd *Poire de Vigne*, or Vine-pear. It is one of the beſt *Beurées*, delicately musked, like the Pear named *Robine*, which, in my Opinion, is the beſt of the musked Race. It is likely this Fruit was named *Rouſſeline*, becauſe its melting Fleſh, and extraordinary musked Flavour is ſomewhat like the *Rouſſelet*. If this Fruit was more conſtant in its Ripening and Perfection, I ſhould eſteem it the beſt of the Winter Fruits; but ſome Years it is dry and high flavour'd, and in others, it is melting and of a very different Reliſh; ſo that the Palate does not know what to expect from it.

*Bergamotte Creſſane*, is large and flat, of a yellowiſh grey Colour; the Fleſh is very melting, and the Juice richly ſugar'd and vinous. 'Tis a rare and excellent Fruit, and brings a great deal of Wood; is much better upon the free Stock than upon the Quince.

## December Pears.

IN *December* the following Pears are in Seaſon.

*La Vilandry*, or by ſome called *le Bezy*, is a pretty large Pear, almoſt of an oval Shape, and of a yellowiſh Colour, very melting and well flavour'd, eſpecially when it grows in light ſandy Land; it laſts good a long time, and is a good Bearer, bringing its Fruit in Cluſters: The Tree makes a good Appearance, the Leaves very long, narrow and pointed; and its Fruit may very juſtly deſerve our Care as one of the beſt of this Month.

*L'Epine longue d'Hyver*, *i. e.* the long Winter Thorn-pear, is by ſome *French* Gardiners called *Verte longue d'Hyver*, *i. e.* the long green Winter-pear, and in ſome places the Winter *Mouille Bouche*, is very melting, and of a rich Water; it is ſomewhat like the Autumn Thorn-pear, but is rather larger and longer, and does not grow mealy in ripening: It laſts a long time, and is one of our beſt Pears.

*Poire de Satin*, *i. e.* the Satin-pear, is almoſt round, white and ſmooth-coated; its Fleſh is very melting, and its Water extremely ſugar'd; it laſts good three Months, and brings plenty of Wood and Fruit every Year, which is ſomewhat particular in a Pear-Tree.

*Colmar*, is a large Pear ſomewhat reſembling the large Autumn Bergamot, but a little more pointed; its Fleſh is butter'd, but not very melting, its Juice ſugar'd and rich; it bears well and ſhoots plentifully; it has not been long about *Paris*, [*Anno* 1690] and is yet pretty rare, but ſo good a Fruit cannot be long in a few Hands: It laſts the beſt part of the Winter.

*Merveille d'Hyver*, *i. e.* the Wonder of the Winter, is a roundiſh Pear, but ſometimes of an unequal Figure; this is one of the beſt melting *Beurées*, 'tis of a Greeniſh Colour like the little Bergamot, but is ſomewhat richer in its Flavour.

*Poire Bronzée*, *i. e.* the Braſs Pear, ſo named becauſe of its Colour, is much like a large *Bon Chretien*; it is a fair large Fruit, fit for baking, and is richly flavour'd by that means.

*La Meſſire Jean d'Hyver*, *i. e.* the Winter Monſieur *John*, by ſome called, *Marion d'Amiens*, and *Poire de Ver*, *i. e.* the Worm-pear, is ſomewhat like the common *Meſſire Jean*, but clear and more pointed; it holds good a long time, its Water is richly ſugar'd, its Fleſh is brittle and crackling, without melting at all in the Mouth.

*La Poire de Mauritanie*, *i. e.* the Moor's Pear; is of a black brown Colour, a little touch'd with red, and a little pointed in its Make: It is called by ſome *le Sucrin noir*, *i. e.* the black Sugar-pear; its Juice is ſomewhat like that of the *Meſſire Jean.*

*L'Archduc*, *i. e.* the Arch-Duke's Pear, is round and yellow, reſembling the Pears called *Petit Oing* before-mentioned, but is later and much better: It is melting, and has a ſweet and agreeable Juice; it is one of our beſt.

*Beurée d'Hyver*, *i.e.* the Winter *Beurée*, is called in ſome places in *France*, *le Gatellier*, and Jenart-pear; 'tis large and green, of a long oval Shape: Its Fleſh is after the manner of the *Beurée* Race, but is better baked than raw.

*La France Real*, or otherwiſe called in *French*, *Groſs micet*, is a large Pear, almoſt round, of a yellowiſh Colour; 'tis one of the beſt baking Pears: There is a ſmall ſort of this which is round and yellow, and very dry, but well taſted; the Kernel is very large, the Fruit is laſting, and the Tree bears well.

*Le Milan d'Hyver*, *i.e.* the Winter *Milan*-pear, called ſometimes *le Milan rond*, *i. e.* the round *Milan*-pear, is not unlike the common Bergamot, but its Coat leſs rough.

*La Poire de Topinambour*, is large, long, and yellow; in ripening very like the Rouville-pear before deſcribed: It is highly perfumed, its Fleſh brittle but tender, and its Juice rich.

*La Poire de Portugal*, *i. e.* the *Portugal*-pear, is not very large, but is high flavour'd, and very agreeable.

*La St. Germain*, or as ſome call it, *l'Inconnue la Fare*, is large and long, its Fleſh butter'd and melting, like enough to the *Virgouleuſe*; it is an extraordinary Fruit for Goodneſs and keeping, and holds in eating a long time; ſo that we ſhou'd have a good many Trees of it, which make a handſome Appearance and bear well; we owe this excellent Fruit to a Wilding which was found upon the Banks of the River *de la Fare*, in the Pariſh of *St. Germain*; and altho' it has been graffed and cultivated with all imaginable Care, its Wood is ſtill inclining to be thorny; the Leaves are long and narrow, and ſeem inclined to ſhut up like thoſe of an Orange-tree that wants Water. Some have diſputed whether the *St. Germain* and *la Fare* are not two different Fruits; for my own part, I ſhall not ſettle that Point; if there is any difference, I think the *St. Germain* is the ſmaller, greener, and leſs melting of the two; but yet the Wood and the Leaves are alike, and in ſome Years their Fruit is very nearly the ſame: However, I think the *St. Germain* is worth all the Winter Fruits; it has all the good Qualities of the *Virgouleuſe*, and none of the bad ones.

*La Poire de Naples*, *i. e.* the *Naples*-pear, is yellow, rough coated, flat, and its Fleſh of the *Beurée* kind; 'tis a great Bearer, its Leaf very long and narrow, and curl'd in a particular manner.

## Pears *good in* January.

DUring the Month of *January*, and the following, the Fruitery will furniſh us with the *Bon Chretien*, which is of ſeveral ſorts. There is firſt, the *Bon Chretien doré*, *i.e.* the gilded *Bon Chretien*, which is the tendereſt and firſt ripe; then we have *le Bon Chretien d'Auche*, which has no Kernel, or *Sans pépin*; it is the beſt ſort at *Auche*, but not about *Paris*; it colours like the other *Bon Chretiens* according to the Aſpect we give it, much better in Eſpalier or againſt a Wall, than in a Dwarf. As the Inſect called the Tiger has ſhewn it ſelf ſo powerful an Enemy to this Tree, we ſhould not expoſe it fully to the *South* Sun, but rather to the *Eaſt* or *Weſt*, which indeed gives us greener Fruit, but they nevertheleſs ripen well in the Houſe, and come to a good Colour: 'Tis to be obſerved that in theſe cooler and moiſter Situations, this Tree preſerves its Leaves green and ſtrong till the end of *Autumn*.

*Le Bon Chretien verd*, *i.e.* the green *Bon Chretien*, has the moſt Juice, and laſts till *April* and *May*, when it is cultivated upon a free Stock: In ripening it turns yellow. There is a long and a round kind, but the beſt is of a Bottle Shape. We muſt be ſure not to expoſe theſe ſorts in too hot a place, for fear of Inſects, and the drying or ſcorching of the Leaves, which ſtops the Sap, and hinders the Progreſs of the Fruit. As a Remedy againſt the Inſects ſubject to annoy this Tree, we ſhould waſh all the Parts of it in Autumn and in the Spring, juſt when the hot Weather comes in, with fair Water, which one may continue from time to time, as well as watering the Roots now and then: Some boil Rue, Wormwood, and other bitter Herbs to waſh their Trees with, but I find fair Water will do alone. There is another way which may be of ſome uſe in this Caſe, which is, to ſpread a Cloth at the Foot of the Tree about Day-break, and with a tender Bruſh ſweep theſe Flies down upon the Cloth and deſtroy them; for early in the Morning, while the Dew falls, they can't take Wing.

We owe this Fruit to St. *Martin*, who brought it from *Hungary* into *France*, at which time the People gave it the name of *Bon Chretien*, *i.e.* the good Chriſtian.

There is ſtill another kind of *Bon Chretien* of *Engliſh* Growth, or at leaſt was brought from *England* into *France*; which might rather be call'd the *Moor* from its black brown Skin: This is much like the *French* ſort in its Wood, Leaf, and Goodneſs; being of a tender Fleſh, and a rich ſugar'd Water.

To preſerve the *Bon Chretien* and other late Fruits, they ſhould be gather'd in fair Weather, when they are very dry, and in the Decreaſe of the Moon, which makes them keep a long while without rotting; we may know when they are ripe, by their eaſy leaving the Tree, which only happens when the Sap is thickned; or is ſaid to be without Motion.

*Le gros Beurée blanc d'Hyver*, *i. e.* the great white Winter *Beurée*-pear, bears a whitiſh Fruit, long and thick ſhaped, ſomewhat like the Winter *Bon Chretien*; it is very melting, and full of a ſweet and agreeable Juice.

*La Poire de Fribourg*, *i. e.* the *Fribourg*-pear, is a large fair Fruit, of a yellow amber Colour; its Fleſh is crackling, but its Juice is ſugar'd and delicious.

*L'Orange d'Hyver*, *i. e.* the Winter Orange-pear, is large and round, green upon the Tree, but changes yellow in ripening: Its Juice is ſweet and agreeable, and it holds good a long time.

*Poire de Prince*, *i. e.* the Prince's Pear, is excellent for baking: It is a large Fruit, of a beautiful red Colour, its Juice is very agreeable, and it is not ſubject to be ſtony.

*Le petit Muſcat d'Hyver*, *i. e.* the little Winter Muſcat, is a round yellow Pear, its Fleſh is a little dry, but very well taſted.

*La Poire de livre*, *i. e.* the Pound-pear, is alſo called *le Rateau Gris*, *i. e.* the grey Rake-pear, is a very large brown Pear, good for baking.

*La Poire de St. Francois*, *i. e.* St. *Francis*'s Pear; 'tis named by ſome *Poire Grillant*, *i. e.* the Slippery-pear, is very large and long, of a brown Colour: It is excellent baked, having a rich musked Juice, and never is ſtony.

## Pears *good in* February.

THE Pears fit for the Table this Month, is firſt, *le Rouſſelet d'Hyver*, *i. e.* the Winter Rouſſelet, not much unlike the Summer Rouſſelet, but is rather longer, and a little pointed towards the Stalk; it is greener, and has leſs red in it than the Summer ſort: Its Juice is richly ſugar'd, and of a vinous Flavour; the Wood is red like the common Rouſſelet, and the Leaves of both are alike.

*Le gros Muſc d'Hyver*, *i. e.* the great Winter Musk-pear, is alſo called, *Orange Muſqué*, *i. e.* the Orange Musk'd-pear, and by ſome, *Poire Magdalaine*, *i. e.* the Magdalain-pear, is round and green, but turns yellowiſh in ripening; its Juice is highly musked, and is one of the beſt of this Seaſon, tho' the Grain of the Fleſh is a little coarſe.

*La Paſtorelle*, is a yellow long Pear, its Fleſh is melting and extraordinary good, it keeps well, and is in eating a long time; but this as well as others is better or worſe, as the Seaſon of its Growth is dry or wet.

*Le Martin Sire*, is a long Pear, green and red; its Juice richly perfum'd, and keeps a great while.

*Le Dagobert*, is pretty large, long and red, it bakes very well.

*La Donville*, by ſome called the *Calot*, or *Poire de Province*, is large and long ſhaped, of a yellowiſh red Colour, not ſubject to be ſtony; it is much eſteemed for baking.

*Le Bequeſne*, is long, more pointed, and of a browner Colour than the *Donville*; it keeps well, and is good baked. In the later Seaſon, we muſt be ſure to have a Stock of Pears for baking, roaſting or ſtewing, for they are preferable to raw Fruit during froſty Weather; even the *Bon Chretien* is mended by roaſting in Wood Embers.

*La Bergamotte d'* Hollande, *i. e.* the *Holland* Bergamot, is a very large, fair round Pear, green, and its Fleſh butter'd, but its Juice not ſo rich as the other Bergamots.

*La Bergamotte Bugy*, is by ſome called *Poire Nichole*, and *Poire du Miniſtre*, and in *Italy*, *Pere ſpina*, is a large Pear, almoſt round, but narrow towards the Stalk; it is of a yellowiſh green, its Fleſh butter'd and melting, and keeps well; it is apt to grow muſty if it is kept cloſe, and takes the Flavour of any thing that touches it, therefore ſhould have Air, and be kept like the *Virgouleuſe*, as I have before directed; it brings excellent Fruit being planted againſt an *Eaſt* or *Weſt* Wall, but does not ſucceed ſo well in Dwarfs or Standards.

*Poire de Giroſle*, *i. e.* the Clove-pear, is round, and of a greyiſh red; its Fleſh is firm, and its Juice very ſweet and well taſted.

*La Stergonette*, is of a middle Size, long and brown; its Fleſh is after the manner of the *Beurée*, and its Juice extreamly rich for a late Pear.

## Pears *good in* March *and* April.

WE have now the St. *Martial*, which in ſome Places is call'd *Poire Angelique*, or *la Chriſtaline*, it is very like the Winter *Bon Chretien*, it is full as long, but hardly ſo thick, and is as late in eating: Its Juice is ſugar'd, and its Fleſh tender: 'Tis an half *Beurée*, and very well eſteem'd in *Languedoc*, and chiefly at *Thoulouſe*, by the Name *Angelique*; and at *Bourdeaux*, is known by the Name of the St. *Martial*.

*La Poire de Chaumoutel*, *i. e.* the Chaumoutel Pear, or otherwiſe call'd *le Bezy de Chaumoutel*, which is the Wilding of that Place, which lies near a Town call'd *Luzarche*, in the Way between *Calais* and *Paris*, is a large Winter *Beurée*, almoſt like the Autumn *Beurée*, but a little more partaking of the red Colour; it is a melting Fruit, and its Water ſweet and rich; 'tis one of the beſt late Pears. This Fruit was found a few Years ago (*Anno* 1690) upon a Wilding at *Chaumoutel*, which I firſt graffed upon a Quince Stock, and I believe ſome few Years will render is yet better than it is, if it be well cultivated; I have eaten of it from its wild Tree at *Whitſuntide*.

It is to be obſerv'd, that Fruits ripen ſooner one Year than another, which happens from the great Heats, or much Wet falling while they are in the Growth, or ripening State; and we muſt obſerve too, that we muſt not keep them too warm or cloſe in the Fruit Chambers. In ſoft Winters, we ſhould give them all the Air we can in dry Weather, but never open the Windows in damp foggy Weather, for ſuch moiſt Air diſpoſes the Fruit to rot. I have obſerved, that in moderate Winters, all Fruits hurry to Maturity or Ripeneſs, and ſoon rot, even the *Virgouleuſe*, unleſs it be kept airy, and then holds good, but eſpecially thoſe Fruits which hang long upon the Tree, are the longeſt laſting; and on the contrary, if Fruits fell from the Tree, or have been gathered too ſoon, they ſoon fade, but then their Fleſh has more of the *Beurée* in it.

*La bonne de Soulers*, is a kind of Winter Bergamot, very melting and well taſted; it keeps a long while, and is one of the beſt.

*La Bergamotte de Paques*, *i. e.* the *Eaſter* Bergamot, is green, and its Fleſh melting; its Juice is as good as that of the Autumn Bergamot.

*Poire de Fontarabie*, *i. e. Fontarabie* Pear, is call'd *Carmelite muſquee*, *i. e.* the musked Carmelite Pear, by ſome *Bonne Foy*, and *Gros Muſcat de Lion*, or *Gros Romain*, is a large Pear, rather long than round, yellow and tinged with red; its Fleſh is never ſtony; it eats well enough raw, but is an admirable baking Pear.

*Le Cadillac*, is by ſome call'd *Poire de Pequigny*, *i. e.* the Pequigny Pear, or *Poire de Citrouille*,

*trouille*, *i. e.* the Gourd, or Pumpkin-pear, or *le Tout-temps*, or everlaſting Pear, is a Sort of a white pound Pear, very large, flat, and white, fit for baking; its Wood and Leaves are likewiſe very large, and one cannot well be without a Tree or two of it, for the Largeneſs and Beauty of its Fruit.

There are many other Pears (ſays the Gentleman that made the foregoing Remarks) which one might mention as fit Fruit for baking; or to follow the Catalogues which have been publiſh'd, one might uſe Names which have been impoſed on Fruits by Strangers at their Diſcretion; but that would confound us more than we were before. I am perſuaded however, that ſince the Date of the foregoing Papers, *Anno* 1690, there are many good Sorts diſcover'd and propagated by our *Engliſh* Gardiners; and it is to be wiſh'd, they would conſult how, when, and where they had their Original, and fling out ſuch from their Catalogues that are not excellent in their Way; for there is no need, in my Opinion, of crouding a Garden with Unneceſſaries, purely for the ſake of Variety. A private Gentleman may have Riches enough in a narrow Compaſs for his Uſe and Satiſfaction, as thoſe of the higheſt Rank can gather from a Multitude of Acres. A ſingle Perſon in a little Ground, may find as conſtant Advantage, as one who has an hundred Acres, and a numerous Attendance and Acquaintance to partake with him of his Benefits.

Our Author is therefore for abridging, as much as may be, the Catalogue of Fruits, that we may plant no Sort but what may by their Goodneſs invite us to regard their Culture; his Judgment paſſes for the *Beurées* and melting Pears, rather than thoſe with brittle, crackling, or *caſſant* Fleſh; and, in my Opinion, I join with him ſo far, that if one of the beſt *Beurées* would hold for eating from *Auguſt* to *April*, that Sort alone would anſwer our End better than the whole Catalogue of Pears to be eaten raw. The Pears with the Beurée Fleſh, ſays he, which are the beſt eſteemed, ſhould be cultivated in dry ſandy Land, which will prevent them from being ſtony; and on the contrary, we ſhould plant the dry, high flavour'd, or muſked Pears in moiſter Soils.

## *Concerning a Pear Tree that bears Fruit twice a Year, at Mr.* Chapman's, *a curious Nurſery-Man, near* Pitfield-Street, Hoxton.

THERE are ſome Inſtances of Trees which naturally bear Fruit twice, and now and then three Times in a Year: The moſt remarkable are the Fig, the *Glaſtonbury* Thorn, and the Vine; but the twice bearing of theſe in one Year, depends ſo much upon a favourable Seaſon, that it is very rare for them in *England* to ripen the Fruit of both their Seaſons: The Attempt however of bearing Fruit twice in a Year, may well enough ſerve to inform us, that their native Countries lie between the Tropicks, where there are two Seaſons in each Year, which equally do the Office of Summer, and for that Reaſon it is natural to Plants of ſuch Climates to be diſpos'd to bloſſom, and bear Fruit at both thoſe Seaſons; and I have obſerv'd in another Place, that all Trees and Plants, let them come from where they will, do manifeſtly preſerve their own natural Seaſons of Growth, whatever Difference there happens to be between their own and this Climate, though they are often Sufferers in the Attempt by cold Weather, unleſs they be houſed: But in Mr. *Chapman*'s Pear Tree, there ſeems to be ſomething rather more particular, for that never fails in the worſt of Years to ripen two Crops of good Fruit, which only differ in the Time of their ripening, and not otherwiſe, as has been conjectur'd, unleſs it be, that the Fruit of the ſecond Crop is ſomewhat ſmaller than the other.

The preceding Year, Mr. *Chapman* preſented me with a Branch, whereon there was ſeveral of the firſt Fruit almoſt full grown, and ſeveral of the ſecond Crop were juſt then ſet, and both theſe were found upon one ſingle Shoot, growing from Buds which were alternately plac'd upon the Shoot; and alſo, it was obſervable that Shoots of this Kind were found in every Part of the Tree, and not any diſtinct Shoots which brought only Fruit of one Crop, or ſingle Shoots which brought forth only of the other Crop; for that would appear to be no more than what is commonly done by Graffing, *i. e.* to have Branches ſeparate upon the ſame Tree which brings Fruit that ripens at different Seaſons. Indeed I find this extraordinary Summer, that a Sort of white Fig in Mr. *Fairchild*'s Garden, ripen'd two Crops of Figs very well, even ſo as to gather of the ſecond Crop ripe on the tenth of *September*; and at the ſame Place I obſerved a ſort of Vine which had a ſecond Crop of Grapes, almoſt ripe about the middle of *September*, which I ſuppoſe might partly happen from an extraordinary Pruning Mr. *Fairchild* gave them this Year, as well as the extraordinary Seaſon; though without either of theſe they would have attempted a double Crop, but then, without theſe Helps, they would not have ripen'd.

I ſuppoſe, ſuch Plants as ſeem ſo naturally to bear twice a Year, are made up of Veſſels of different Kinds, which conſequently contain Juices of different Kinds, the one Sort taking a longer or ſhorter Time to digeſt the Juices than the other; and therefore this doubling the Seaſons in bearing may be brought to paſs: The Veſſels which lead to the Buds that bloſſom in the Spring, have their Juices ſufficiently ripen'd then for the compleating the Bloſſom, whilſt thoſe Veſſels which lead to the Buds which bloſſom in *July*, are crude and immature, and require ſome Months more to ripen them for Fruit bearing.

Mr. *Chapman* tells me, that he propagates this Tree, which is call'd the Twice Pear, by graffing, and that thoſe he has graffed from it, are like it in every Reſpect; but then, as this is done by graffing, we muſt conſider that a Graff has three or four Buds to it, and ſo may have all the Qualities in it that are found in the old Tree, or if there was but one Bud of it to ſhoot, perhaps the Veſſels of a different Sort that muſt be in the Wood of the Graff, may find Means to ſhew their Diſpoſition hereafter; for every Veſſel in a Plant has ſome Correſpondence with the reſt. But I have Reaſon to queſtion, whether a ſingle Bud of this Tree being inoculated on a Stock, will afford any more than ſuch Juices or Veſſels as are neceſſary to bring Bloſſoms of one Seaſon, without ever offering to bloſſom in another; and if by trying this we find that one Inoculation will only bloſſom in *July*, and another will only bloſſom in *April*, it will diſcover a great Myſtery in the Nature of Plants. I may take Notice in this Place, that there is a Pear-Tree in *Norfolk*, which brings Pears of very different Kinds, the one a Summer, the other a Winter Pear, and yet both theſe Sorts are found upon one Twig, and even proceeding from the ſame Bud; nay, and ſome of the Pears partaking both of the Summer and Winter Kind; like the Apple in *Devonſhire*, which I have treated of in another Part of this Work, wherein I have alſo propos'd a Method of Graffing by Approach, call'd *Touching*, and have given a Cut of it. I believe it is by ſome ſuch Means that in *Marlborough* Foreſt, there is now the Hazle join'd with the Hawthorn, ſo as to make one Tree, but whether they are ſo united, and their Juices are yet ſo well mixt, as that they flow together in the ſame Veſſels, cannot be ſo well reſolv'd, as by graffing a Branch of the Plant which partakes of both, upon an Hazle, or upon a White-thorn, upon either of which it will take, if the Veſſels of both are united, unleſs indeed we were to cut one entirely from its Root, then we ſhould ſoon ſee how much it depended upon the other. This leads me to conſider the numerous Graffings mention'd by the Antients; and as I think nothing can ſeem more different in Nature, than the Hazle and Haw-thorn, which by *Touching* are thus united or grown into one another, ſo I have more room to think that what they have offer'd to us about graffing Plants of ſeeming contrary Natures upon one another, is not ſo irrational as at firſt it appear'd to me, not conſidering that they might uſe ſuch a Graffing as this which I call *Touching*, and is but lately reviv'd with us. By the ſame Means Mr. *Whitmil* abovemention'd has this Year joined the Fig with the Mulberry.

## CHAP. III.

### *Of Plums; a Catalogue of the beſt Sorts, with their Deſcriptions, and ſome uſeful Particulars relating to them.*

THE Plum is a Fruit which is as much in Eſteem as any Fruit whatever: Its great Varieties, either for eating raw, bak'd, or in Sweet-meats, makes it deſervedly take Place among our beſt Fruits.

We have Plums from *July* till the end of *October*, and even later; but the Sun at that Seaſon of the Year has ſo little Force, that we cannot boaſt of any good Fruit of this Kind after *October* is paſs'd.

The earlieſt Plum in *France* is call'd *Ceriſette*, or little Cherry Plum; we have two ſorts of it, one red, and the other white, which both part from the Stone, like the Damask Plum; and though theſe are Wildings, they deſerve a Place in our Gardens, being well taſted, and coming very forward; they are raiſed by Off-ſets, and from the Stone, and without graffing come to bear very well.

2. *Prune de Catalogne*, *i. e.* the *Catalonian* Plum, is large, white, and very forward, but

does not leave the Stone; it is a Wilding, and bears well without graffing.

3. *Prune de St. Cyr, i. e.* the *St. Cyr* Plum, is a black Damask, and early ripe; it has a pleaſant Juice, and leaves the Stone; it may be raiſed by Suckers.

4. *Gros Damas Noir hâtif: i. e.* the great black early Damask Plum, leaves the Stone dry; its Fleſh is yellow, and one of our beſt Fruits; it muſt be graffed and planted againſt a Wall, for in the open Air it is ſubject to drop its Fruit.

5. *Le Petit Damas Noir, i. e.* the little black Damask Plum, is the next ripe, and is a great Bearer, may be raiſed from Suckers, or from the Stone, and requires no graffing; it is every where allowed a good Plum.

6. *Prune de Taureau, i. e.* the Bull Plum, or by ſome call'd *Poitron*, is a large long Fruit of a browniſh red, but does not part from the Stone; it bakes well, and makes good Sweet-meats, but I cannot commend it to be eaten raw; however, as it comes early and bears well, we ſhould not be without it.

7. *Prune de Damas d'Italie, i. e.* the *Italian* Damask Plum, nam'd by the *Italians*, *Bouboucone*, is of a Violet Colour, large, and early ripe; it leaves the Stone, and has an excellent ſweet Juice; it is one of the beſt Plums, and not very common; it is not ſubject to run.

8. *Perdrigon de Cernay*, is alſo call'd the double Damask and *Paſſevellours*; this, through Miſtake, has been taken for that Plum call'd *Prune de Monſieur*, but it is not; however, the Fruit is fair and large, and of a fine Violet Colour, well powder'd, and comes early; the Stone is large as well as its Wood and Leaf; it opens

well, leaving the Stone dry, but its Flavour is none of the beſt, yet one cannot well be without it, being a great Bearer.

9. *Prunes de Damas*, *i. e.* the Damask Plums, are red, white, and of a Violet Colour; they are all very good, leave the Stone, and their Juice is richly ſugar'd; the red and white Damask are round and ſmall, and the Violet ſomewhat larger and longer.

10. *Prune de Brugnolle*, *i. e.* the *Bruniolle* Plum, is a ſort of *Perdrigon*, whoſe Fleſh is yellow; it is good raw, dry'd, or in Sweet-meat.

11. *Prunes d'Abricot*, *i. e.* the Abricot Plums, are of ſeveral ſorts; the yellow, which is large and long, is not ſo good as the others, having a dry Fleſh; the red ſort is larger, ſomewhat like the Imperial Plum; it has the Taſte of an Abricot; and the white ſort is large, round, and of an extraordinary rich Flavour; I eſteem it one of the beſt; All theſe leave the Stone.

12. *Prune Diaprée*, is call'd in *England* the Diaper Plum, is of ſix ſorts; firſt, the Violet, which is long, and very much powder'd, quits the Stone, is early ripe, and one of our beſt Plums; it bears well.

13. *Diaprée rouge*, *i. e.* the red Diaper Plum, is by ſome call'd *Roche-corbon*, from a Village near *Tours*; it does not quit the Stone, but is large, round, and extremely well taſted, alſo it dries well; if we propagate it from Suckers, it bears abundantly, but if it is graffed, it brings larger Fruit.

14. *Diaprée blanche*, *i. e.* the white Diaper Plum, is pretty large, greeniſh, of a ſugar'd Juice, and comes clean from the Stone, like the Violet Diaper Plum, whoſe Fleſh is green; but this has a yellow Fleſh, like the true Diaper

Plum: There is another ſort which we call the *Baſtard Diaper*, it is of a Violet Colour, and well duſted, but does not clear its Stone ſo well as the reſt; it is propagated by Suckers. The long, red, early Diaper Plum is alſo very good; it brings double Flowers, and is reckon'd a Curioſity.

15. *Mirabelle* is a ſmall kind of white Damask, which bears plentifully; it makes an excellent Sweet-meat, having a musk'd Flavour; it does better from Suckers than by graffing: There is the large and the ſmall *Mirabelle Plum*, both of the ſame Goodneſs.

16. *Drap d'Or*, *i. e.* the Cloth of Gold Plum, is a yellow Damask ſtreak'd with red; it leaves the Stone, is a fine Fruit, very good, and of an excellent Juice; I think it one of the beſt.

17. *Prune de Perdrigon*, *i. e.* the Perdrigon Plum, is of four ſorts; the white, which is large, and a little long, is a fine Plum, either raw, or in Sweetmeat; the red and violet Kinds, which ſeldom leave the Stone, are both in high Eſteem; their Fleſh is firm, and their Juice extremely rich; the Sweetmeats made of them are very much in Requeſt, as well as the Fruit without any Art.

18. *Perdrigon noir*, *i. e.* the black *Perdrigon*, is leſs than the others; it is a good Bearer, but does not leave the Stone; it has a fine and very ſingular Flavour.

19. *Perdrigon Norman*, is a pretty large Plum, of a blueiſh red, very much powder'd; it is a round Fruit, but bears well.

20. *Petit Perdrigon Violet tardif*, *i. e.* the late little Violet *Perdrigon*, is almoſt round, leaves the Stone, and bears well; it has a rich Juice, and is eaten in *October*, and ſome time after.

21. *Prune Imperiale*, i. e. the Imperial Plum, is of four ſorts; the red Kind is large, long, and very much powder'd; it is an ancient Fruit, and very good; we cannot well have too many of them, for they dry very well in an Oven, and are no leſs to be commended raw.

22. *Imperiale blanche*, i. e. the white Imperial Plum, is of the ſame Bigneſs and Length with the former, but not ſo good, being ſome Years meally and dry.

23. *Imperiale noir*, i. e. the black Imperial Plum, comes late, and is a very good Fruit; it comes clean from the Stone, as well as the others of its Tribe.

24. *Imperiale tardive*, i. e. the late Imperial Plum, is the biggeſt and the beſt; it is very much powder'd, and bears very well; it will laſt till towards the end of *October*.

25. *Prune Royale*, i. e. the Royal Plum, is a large, fair, round Plum, of a bright red, its Stalk long, the Fruit very much powder'd, and very well taſted; it is one of the beſt.

26. There are ſeven ſorts of Damask Plums, which come later than the others, and are ſomewhat more rare; the firſt is call'd *Damas Muſquée*, i. e. the musked Damask Plum, is the ſame with the *Cypreſs* or *Martha* Plum; it is black, and very much powder'd, rather flat than round; its Taſte is particular and rich, and may be rank'd among our firſt Plums.

27. *Damas Orangé*, i. e. the Orange Damask Plum, is ſtreak'd with red, and is ſomewhat like the little *Mirabelle Plum*; ſo that ſome call it the *red Mirabelle*, both having a Stone much alike, i. e. ſmall, and of a longiſh make.

28. *Gros Damas Verd*, *i. e.* the great green Damask Plum, is round, and always of a green Colour, when it is ripe; it leaves the Stone, is very fleſhy, and has an extraordinary rich Flavour. Q. Whether this is not the *Green Gage Plum* in the *Engliſh* Catalogue?

29. *Le Petit Damas Verd*, *i. e.* the ſmall green Damask Plum, is a good Bearer, and makes excellent Sweetmeats; it is always green colour'd when it is ripe.

30. *Damas Gemelle*, *i. e.* the Twin Plum, is very much powder'd, pretty large and long, and of a ſweet Water, the Fruit always comes double; it is very rare.

31. *Damas blanc tardif*, *i. e.* the late white Damask Plum, is rather flat than round; its Juice is very ſweet, and it comes clean from the Stone like the other Damasks.

32. *Damas de' Eſpagne rouge*, *i. e.* the red *Spaniſh* Damask, is round, very much powder'd and large; it quits the Stone readily, but is not ſo high flavour'd as the others, but it is an admirable Plum for bearing, and is very beautiful.

33. *Prune de Moyeu*, *i. e.* the Yolk of Egg Plum, is of two Kinds, one comes from *Burgundy*, whoſe Wood is thorny, and the Fruit longiſh like an Heart; yellow without and within, is excellent in Sweetmeat and Marmelade, where its Flavour is improved by the Fire, comming near that of the Abricot; but it is not very agreeable to be eaten raw, having a dry Fleſh, and a ſharp Juice like the other kind, call'd in *French Moyeu d'Oeuf*, becauſe it is like the Yolk of an Egg; this ſort is likewiſe round and yellow, and its Fleſh dry and tart; it is good in Sweetmeats, but not rich as the former; both theſe being Wildings, bear abundantly.

34. The Plum call'd *Prune Damaſquinée*, is a kind of large white Damask Plum, ſtreak'd with red; it is rather long than round, very fleſhy, and one of the faireſt and beſt Plums: it ripens pretty late.

35. *Prune de Jeruſalem*, *i. e.* the *Jeruſalem* Plum, is by ſome call'd the *Bourdeaux* Plum, or *L'Oeil de Bœuf*, *i. e.* the Ox-Eye Plum, is very large, of a browniſh Violet Colour, very much powder'd, unequal in its Shape; it does not leave the Stone, and is rather good to look at, than fit for eating raw.

36. *Prune d'Ilvert*, *i. e.* the *Ilvert* Plum, is very long and narrow, makes good Sweetmeats, and is always green; it does not part from the Stone; there is alſo a red ſort, which is not ſo much in eſteem, becauſe its Fleſh, which is yellow, grows red by ſtewing or baking.

37. *Le Cœur de Bœuf*, *i. e.* the Ox-heart Plum, or by ſome call'd *Prune de St. Lo*, is the largeſt of all; it comes clean from the Stone; its Fleſh is very yellow, and its Skin red; it is half as big, and as long again as the Imperial Plum, but its Fleſh is not ſo ſolid.

38. *Le Mangeron*, is a fine large Damask Plum, of a Violet Colour; the Fruit is round, and opens well; the Taſte is particular, and much to be admir'd.

39. *Prune ſans Noyau*, *i. e.* the Plum without a Stone, is black and ſmall, ſhap'd like a Heart; it opens well, but has only a Kernel withinſide; it is a Rarity, but not very pleaſant to eat.

40. *Prune Datille*, is of two Kinds, one brought from a Place nam'd *Gonorre*, and the other from *Maus*; the laſt ſort is the white, long and narrow, the other is leſs, ſhorter, and

of a Violet Colour; they both open well, and are excellent in their Taſte.

41. *Cœur de Pigeon, i. e.* the Pigeon's Heart Plum, is ſo call'd from its Shape; this ſort is black, of a moderate Size, and opens very well; it is well taſted, and is ſo much the more to be eſteem'd, becauſe it keeps ſo long upon the Tree, *i. e.* from about the end of *September*, till the end of *October*; it is fit for eating, and it is a very good Bearer.

42. *Prune de Rhodes, i. e.* the Rhodes Plum, is fair and large, of a brown Violet Colour, very much duſted; it is a little longiſh, and opens pretty well; it ripens a little late.

43. *Damas gris, i. e.* the grey Damask, is call'd alſo *Prune de Monſieur*, is a Violet Plum, very much powder'd; it is pretty large, the Fleſh yellow, and quits the Stone; it is well taſted, and is eaten late; ſome call it *Grós Damas Muſquee tardif, i. e.* the large late musk'd Damask Plum.

44. *Prune Tranſparante, i. e.* tranſparent Plum, ſo call'd, becauſe if we hold it to the Sun one may ſee through it, ſo as to diſcover the Stone; it is very rare, and an handſome large Fruit, long and white; it is very good, and parts from the Stone.

45. *Prune Virginale, i. e.* the virginal Plum, is a ſort of large white Damask, very much eſteem'd in *Anjou*; it leaves the Stone, and is one of the beſt Plums; it is ſomewhat like the Abricot Plum brought from *Tours*, but is a little whiter without and within.

46. *Mignonne, i. e.* the *Minion* Plum, is pretty large and long, white ſtreak'd with red, and opens well; its Fleſh is delicate, and its Water very ſweet; it is highly eſteem'd about *Touraine*

in *France*, where it gain'd the Name *Mignonne*, *i. e. Favourite*, for its good Qualities; it bears very well, and holds a long time ripe upon the Tree.

47. *Reine Claude*, *i. e.* Queen *Claudia* Plum, is a ſort of large white Damask, almoſt round; it ripens pretty late, and its Fleſh is firm and thick; it quits the Stone, and its Juice is richly ſugar'd; it is highly eſteem'd.

48. *Prune de Pologne*, *i. e.* the *Polonian* Plum, is white, large and longiſh, it opens well, and is very good; it is ſomewhat like the white Imperial, but much better.

49. *Prune de Suiſſe*, *i. e.* the *Switzer's* Plum, or by ſome call'd *l'Alteſſe*, is almoſt made like the Imperial, but narrower, longer, and a little pointed; it is of a Violet Colour, and very much powder'd; it leaves the Stone, comes late, and yet ripens well.

50. There is alſo another *Polonian* Plum, of a Violet Colour, very much powder'd, pretty large and long, almoſt ſhaped like the St. *Catherine*; the Fleſh is yellow and very well taſted, though it is one of the lateſt Plums.

51. *La Prune Date*, *i. e.* the Date Plum, is a ſort of late Imperial; there is the white and the red; they open well, and keep a long while ripe upon the Tree, and after they are gather'd, the Fleſh is very firm, and is good raw or dry'd.

52. *Prune de St. Catherine*, *i. e.* St. *Catherine's* Plum, is white, large, and more flat than long; it rarely leaves the Stone, but is very good to eat raw, being one of thoſe which has the ſweeteſt Juice, although it ripens late; it dries very well, and without much Trouble, being ſubject to dry even upon the Tree; this ſort comes better from a Sucker than by graffing, and we ſhould have a good many of them.

53. *Damas d'Eſpagne*, *i. e.* the *Spaniſh* Damask Plum, is of two kinds; one is quite round, and the other a little longiſh; they are both black, and come very late, but they open well, and are very good.

54. *Rognon de Coq*, *i. e.* the Cock's Kidney, is a ſmall white Plum, ſtreak'd with red, a little longiſh, and ſhap'd like a Kidney, but it cleaves to the Stone, and comes late; it is a a great Bearer.

55. *Prune de St. Julian*, *i. e.* the St. *Julian* Plum, is of a dark Violet Colour, very much duſted; this does not quit the Stone, and dries upon the Tree, and ſometimes remains there till the hard Froſts begin; it is a good Plum, and comes from a Wilding.

56. *Prune Norbette*, *i. e.* the *Norbet* Plum, is like one of the late ſmall Damask Plums, which do not part from the Stone; it eats well raw, but bakes much better; it makes excellent Pruants of a fine blue Colour.

57. *Diaprée noir tardive*, *i. e.* the late black Diaper Plum, is an excellent Fruit, a little rounder than the early ſort; it is eaten in *October* and *November*.

58. *Gros Damas Violet Tardif*, *i. e.* the late large Violet Damask Plum, comes from *Tours*, is a very good Fruit, and leaves the Stone; it ripens late.

59. *Gros Damas rouge de Tours*, *i. e.* the great red Damask Plum, brought from *Tours* in *France*, ripens its Fruit late; it leaves the Stone, and is very well taſted; this holds in eating among the laſt Plums.

60. *L'Imperatrice*, *i. e.* the Empreſs, is a large, round, Damask Plum, of a Violet Colour, very much powder'd; it is a good Bearer, its Fleſh

yellow, and very agreeable; it is one of the lateſt ripe.

61. *Perdrigon Nantois*, is a large red Damask that comes late; it is of a long make like the Date Plum, but leſs pointed; I reckon it one of the beſt, and it keeps upon the Tree till the great Froſts.

62. *Gros Damas Violet*, the large Violet Damask Plum, is a long Fruit, well powder'd, is extremely in Eſteem for its Goodneſs, its laſting, and good bearing. *N. B.* By the powdering and Duſt of a Plum is meant what the *Engliſh* Gardeners call the blue of a Plum.

63. *Prune Supreme*, *i. e.* the ſupreme Plum, is one of the largeſt, and is white ſtreak'd with red, of a long make, and comes late; the Leaf is extremely large: This Fruit does not part freely from the Stone, and, in my Opinion, is rather to be choſen for its Beauty than its Goodneſs.

64. *Le Gros Damas noir tres tardif*, *i. e.* the lateſt great black Damask Plum, does not part freely from the Stone, nor is it ſo high flavoured as the former Plums; however, we ſhould have ſome of this ſort, as the Fruit is beautiful and laſts a great while.

One might yet mention great Varieties of Plums, which are frequent enough about *Paris*, but I ſhall content my ſelf with thoſe already obſerv'd, which will furniſh a ſufficient Variety for any Garden of the beſt ſorts.

Plum: There is another ſort which we call the *Baſtard Diaper*, it is of a Violet Colour, and well duſted, but does not clear its Stone ſo well as the reſt; it is propagated by Suckers. The long, red, early Diaper Plum is alſo very good; it brings double Flowers, and is reckon'd a Curioſity.

15. *Mirabelle* is a ſmall kind of white Damask, which bears plentifully; it makes an excellent Sweet-meat, having a musk'd Flavour; it does better from Suckers than by graffing: There is the large and the ſmall *Mirabelle Plum*, both of the ſame Goodneſs.

16. *Drap d'Or*, *i. e.* the Cloth of Gold Plum, is a yellow Damask ſtreak'd with red; it leaves the Stone, is a fine Fruit, very good, and of an excellent Juice; I think it one of the beſt.

17. *Prune de Perdrigon*, *i. e.* the Perdrigon Plum, is of four ſorts; the white, which is large, and a little long, is a fine Plum, either raw, or in Sweetmeat; the red and violet Kinds, which ſeldom leave the Stone, are both in high Eſteem; their Fleſh is firm, and their Juice extremely rich; the Sweetmeats made of them are very much in Requeſt, as well as the Fruit without any Art.

18. *Perdrigon noir*, *i. e.* the black *Perdrigon*, is leſs than the others; it is a good Bearer, but does not leave the Stone; it has a fine and very ſingular Flavour.

19. *Perdrigon Norman*, is a pretty large Plum, of a blueiſh red, very much powder'd; it is a round Fruit, but bears well.

20. *Petit Perdrigon Violet tardif*, *i. e.* the late little Violet *Perdrigon*, is almoſt round, leaves the Stone, and bears well; it has a rich Juice, and is eaten in *October*, and ſome time after.

21. *Prune Imperiale*, *i. e.* the Imperial Plum, is of four ſorts; the red Kind is large, long, and very much powder'd; it is an ancient Fruit, and very good; we cannot well have too many of them, for they dry very well in an Oven, and are no leſs to be commended raw.

22. *Imperiale blanche*, *i. e.* the white Imperial Plum, is of the ſame Bigneſs and Length with the former, but not ſo good, being ſome Years meally and dry.

23. *Imperiale noir*, *i. e.* the black Imperial Plum, comes late, and is a very good Fruit; it comes clean from the Stone, as well as the others of its Tribe.

24. *Imperiale tardive*, *i. e.* the late Imperial Plum, is the biggeſt and the beſt; it is very much powder'd, and bears very well; it will laſt till towards the end of *October*.

25. *Prune Royale*, *i. e.* the Royal Plum, is a large, fair, round Plum, of a bright red, its Stalk long, the Fruit very much powder'd, and very well taſted; it is one of the beſt.

26. There are ſeven ſorts of Damask Plums, which come later than the others, and are ſomewhat more rare; the firſt is call'd *Damas Muſquée*, *i. e.* the musked Damask Plum, is the ſame with the *Cypreſs* or *Martha* Plum; it is black, and very much powder'd, rather flat than round; its Taſte is particular and rich, and may be rank'd among our firſt Plums.

27. *Damas Orangé*, *i. e.* the Orange Damask Plum, is ſtreak'd with red, and is ſomewhat like the little *Mirabelle Plum*; ſo that ſome call it the *red Mirabelle*, both having a Stone much alike, *i. e.* ſmall, and of a longiſh make.

28. *Gros Damas Verd, i. e.* the great green Damask Plum, is round, and always of a green Colour, when it is ripe; it leaves the Stone, is very fleſhy, and has an extraordinary rich Flavour. Q. Whether this is not the *Green Gage Plum* in the *Engliſh* Catalogue?

29. *Le Petit Damas Verd, i. e.* the ſmall green Damask Plum, is a good Bearer, and makes excellent Sweetmeats; it is always green colour'd when it is ripe.

30. *Damas Gemelle, i. e.* the Twin Plum, is very much powder'd, pretty large and long, and of a ſweet Water, the Fruit always comes double; it is very rare.

31. *Damas blanc tardif, i. e.* the late white Damask Plum, is rather flat than round; its Juice is very ſweet, and it comes clean from the Stone like the other Damasks.

32. *Damas de'Eſpagne rouge, i. e.* the red *Spaniſh* Damask, is round, very much powder'd and large; it quits the Stone readily, but is not ſo high flavour'd as the others, but it is an admirable Plum for bearing, and is very beautiful.

33. *Prune de Moyeu, i. e.* the Yolk of Egg Plum, is of two Kinds, one comes from *Burgundy*, whoſe Wood is thorny, and the Fruit longiſh like an Heart; yellow without and within, is excellent in Sweetmeat and Marmelade, where its Flavour is improved by the Fire, comming near that of the Abricot; but it is not very agreeable to be eaten raw, having a dry Fleſh, and a ſharp Juice like the other kind, call'd in *French Moyeu d'Oeuf*, becauſe it is like the Yolk of an Egg; this ſort is likewiſe round and yellow, and its Fleſh dry and tart; it is good in Sweetmeats, but not rich as the former; both theſe being Wildings, bear abundantly.

34. The Plum call'd *Prune Damaſquinée*, is a kind of large white Damask Plum, ſtreak'd with red; it is rather long than round, very fleſhy, and one of the faireſt and beſt Plums: it ripens pretty late.

35. *Prune de Jeruſalem, i. e.* the *Jeruſalem* Plum, is by ſome call'd the *Bourdeaux* Plum, or *L'Oeil de Bœuf, i. e.* the Ox-Eye Plum, is very large, of a browniſh Violet Colour, very much powder'd, unequal in its Shape; it does not leave the Stone, and is rather good to look at, than fit for eating raw.

36. *Prune d'Ilvert, i. e.* the *Ilvert* Plum, is very long and narrow, makes good Sweetmeats, and is always green; it does not part from the Stone; there is alſo a red ſort, which is not ſo much in eſteem, becauſe its Fleſh, which is yellow, grows red by ſtewing or baking.

37. *Le Cœur de Bœuf, i. e.* the Ox-heart Plum, or by ſome call'd *Prune de St. Lo*, is the largeſt of all; it comes clean from the Stone; its Fleſh is very yellow, and its Skin red; it is half as big, and as long again as the Imperial Plum, but its Fleſh is not ſo ſolid.

38. *Le Mangeron*, is a fine large Damask Plum, of a Violet Colour; the Fruit is round, and opens well; the Taſte is particular, and much to be admir'd.

39. *Prune ſans Noyau, i. e.* the Plum without a Stone, is black and ſmall, ſhap'd like a Heart; it opens well, but has only a Kernel withinſide; it is a Rarity, but not very pleaſant to eat.

40. *Prune Datille*, is of two Kinds, one brought from a Place nam'd *Gonorre*, and the other from *Maus*; the laſt ſort is the white, long and narrow, the other is leſs, ſhorter, and

of a Violet Colour; they both open well, and are excellent in their Taſte.

41. *Cœur de Pigeon*, *i. e.* the Pigeon's Heart Plum, is ſo call'd from its Shape; this ſort is black, of a moderate Size, and opens very well; it is well taſted, and is ſo much the more to be eſteem'd, becauſe it keeps ſo long upon the Tree, *i. e.* from about the end of *September*, till the end of *October*; it is fit for eating, and it is a very good Bearer.

42. *Prune de Rhodes*, *i. e.* the Rhodes Plum, is fair and large, of a brown Violet Colour, very much duſted; it is a little longiſh, and opens pretty well; it ripens a little late.

43. *Damas gris*, *i. e.* the grey Damask, is call'd alſo *Prune de Monſieur*, is a Violet Plum, very much powder'd; it is pretty large, the Fleſh yellow, and quits the Stone; it is well taſted, and is eaten late; ſome call it *Grôs Damas Muſquee tardif*, *i. e.* the large late musk'd Damask Plum.

44. *Prune Tranſparante*, *i. e.* tranſparent Plum, ſo call'd, becauſe if we hold it to the Sun one may ſee through it, ſo as to diſcover the Stone; it is very rare, and an handſome large Fruit, long and white; it is very good, and parts from the Stone.

45. *Prune Virginale*, *i. e.* the virginal Plum, is a ſort of large white Damask, very much eſteem'd in *Anjou*; it leaves the Stone, and is one of the beſt Plums; it is ſomewhat like the Abricot Plum brought from *Tours*, but is a little whiter without and within.

46. *Mignonne*, *i. e.* the *Minion* Plum, is pretty large and long, white ſtreak'd with red, and opens well; its Fleſh is delicate, and its Water very ſweet; it is highly eſteem'd about *Touraine*

in *France*, where it gain'd the Name *Mignonne*, *i. e. Favourite*, for its good Qualities; it bears very well, and holds a long time ripe upon the Tree.

47. *Reine Claude*, *i. e.* Queen *Claudia* Plum, is a ſort of large white Damask, almoſt round; it ripens pretty late, and its Fleſh is firm and thick; it quits the Stone, and its Juice is richly ſugar'd; it is highly eſteem'd.

48. *Prune de Pologne*, *i. e.* the *Polonian* Plum, is white, large and longiſh, it opens well, and is very good; it is ſomewhat like the white Imperial, but much better.

49. *Prune de Suiſſe*, *i. e.* the *Switzer's* Plum, or by ſome call'd *l'Alteſſe*, is almoſt made like the Imperial, but narrower, longer, and a little pointed; it is of a Violet Colour, and very much powder'd; it leaves the Stone, comes late, and yet ripens well.

50. There is alſo another *Polonian* Plum, of a Violet Colour, very much powder'd, pretty large and long, almoſt ſhaped like the St. *Catherine*; the Fleſh is yellow and very well taſted, though it is one of the lateſt Plums.

51. *La Prune Date*, *i. e.* the Date Plum, is a ſort of late Imperial; there is the white and the red; they open well, and keep a long while ripe upon the Tree, and after they are gather'd, the Fleſh is very firm, and is good raw or dry'd.

52. *Prune de St. Catherine*, *i. e.* St. *Catherine's* Plum, is white, large, and more flat than long; it rarely leaves the Stone, but is very good to eat raw, being one of thoſe which has the ſweeteſt Juice, although it ripens late; it dries very well, and without much Trouble, being ſubject to dry even upon the Tree; this ſort comes better from a Sucker than by graffing, and we ſhould have a good many of them.

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53.

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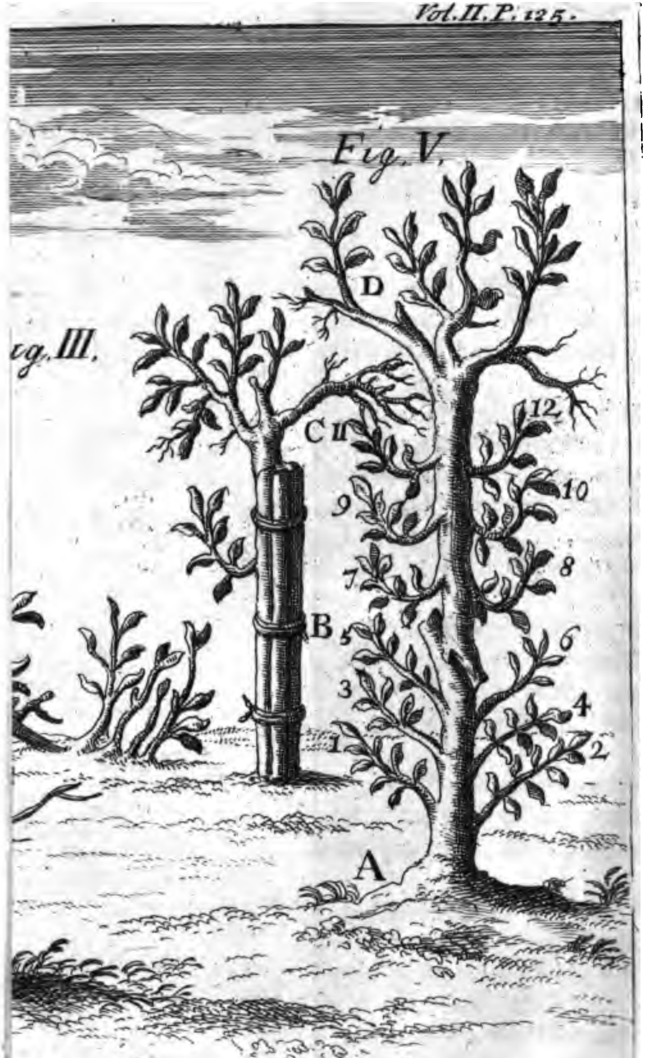


Fig. V.

ig. III.

pointed; it bears well either in Standard or againſt a Wall, and well deſerves a Place among our beſt Peaches.

31. *Peſche d'Abricot*, *i. e.* the Abricot-peach, is by ſome call'd the *Scandalian*-peach; we have two ſorts of it, both round, one ſmooth and velveted, and of a reddiſh Colour, the other rougher coated and yellow; they bear and ripen well either in Dwarfs or Standards, and may be rais'd from the Stone.

32. *Peſche Bellegarde*, *i. e.* the Bellegard-peach of the *Engliſh* Catalogues, is a fair, large and round Fruit, and has very little red within or without; it is a good Peach and comes a little late.

33. *Peſche Narbonne*, *i. e.* the *Narbonne*-peach, is very large and greeniſh, its Fleſh is a little dry and cottony, rather to be eſteem'd for coming late, than for its Goodneſs.

34. *Peſche Roſſane*, *i. e.* the *Roſſane*-peach, is eſteem'd in *Languedoc*; it is yellow within and without, the Fleſh is a little dry, and not very high flavour'd about *Paris*; the Fruit is long, large, and comes late.

All the Peaches which are yellow within and without are leſs eſteem'd than the others, having a drier Fleſh, and a leſs perfum'd Juice.

35. *Belle de Vitry*, is a very large Peach, flat, fleſhy, and full of Knobs; it is a very good late Peach; it is juicy, rich, and very red towards the Stone, which is very ſmall; it is ſo like the *Nivette*-peach, that ſome Gardiners would have it the ſame; but I am of Opinion it is the Female of the *great white monſtrous Pavy*, which is not unlike it, and comes at the ſame time; it is almoſt round like the *Admirable*, which is

white within and without, but the *Belle de Vitry* is of a browniſh red and velveted.

36. *Peſche de Peau*, *i. e.* the Skin-peach, is of two ſorts, *viz.* the round kind, which is a good Peach, and the beſt of the two; and the long ſort which is flat, and ſubject to decay in the middle, its Stone ſplitting for the moſt part; it requires a warm Expoſure, otherwiſe its Fruit is green and taſtleſs; the Male of this ſort is very large, and is call'd the *Monſtrous Pavy*, which brings a fine red Fruit, full of Fleſh, and requires the warmeſt Expoſure to bring its Fruit to Perfection.

There are ſtill many other Tribes of Peaches, as thoſe that bear the Title of *Preſſe*, of which there are white, red and yellow. The *Mericotoues* or *Malacotoues*, &c. which I ſhall not particularly take Notice of, no more than of ſome Pavies, which will not ripen in the colder Climates, *i. e.* where the Sun is not very hot in *October*, which is very neceſſary to ſoften the Fleſh of the *Pavies*, which are too apt to be hard.

## CHAP. V.

### *Of the Hazle, Walnut, Mulberry, Pomegranate, Cornelian Cherry, and l'Azzeroli; Remarks upon their Management and Improvement: With particular Proofs of the Sap's Circulation in Plants.*

### *Of the Hazle.*

I Have obſerv'd five Kinds of Hazles, which may properly enough be cultivated about a Country-Houſe, and it is as likely there may be as many more that may ſlip my Obſervation: However, if any one knows how to manage theſe, he needs no Inſtructions for the Education of the reſt, for they are all ſo nearly allied, that their Management is the ſame, unleſs in this Particular, that the *Spaniſh* and *Engliſh* Hazles will bear well in a Coppice, and the Philberts and Cobnut muſt have Air to bring a tolerable Crop; the ſorts are theſe.

Red Philbert, beſt—White Philbert, good—*Spaniſh* Hazle, good—Cob-nut, very large—Common Hazle; all theſe may be graffed upon one another, and the Seedlings bring Nuts of various Kinds.

As all theſe are Haſels or Hazles, I ſhall give only the general Names which they are call'd by in the ſeveral Countries in and near *Europe*, without entring upon the ſeveral Botanical Diſtinctions; nor ſhould I go ſo far as this, but for the ſake of the Gardiners, who, if they have to do with Foreigners, may know what Tribe of Plants is meant, if the Queſtion ſhould be ask'd in any Language, and I leave the Gardiners then to produce Varieties.

In *Greek* it is call'd καρύα ποντικὴ i. e. *Nux Pontica*, or *Corylus*, and *Nux Abellina* or *Avellana*; the *Arabians* name the Hazle, *Agileuz*, and *Bunduch* or *Banduch*; in *Italy* it is call'd *Nocivole*, *Nocelle* and *Avellana*, and in *Spain Avellane*; the *French* call the Tree *Coudrier*, and thoſe which we call Philberts in *England*, they call *Avelines*; in *Germany* theſe Nuts are call'd *Haſelnutz*, and the *Hollanders* name them *Haſelnoot*.

The red Philbert is eſteem'd more than the others; its Kernel is tender, and the Shell very thin; this and the white Philbert, both bring their Nuts in Cluſters, even ſometimes to the Number of twelve in a Bunch.

The Cob-nut brings the largeſt Nuts of any of the Hazles, but its Shell is very hard as well as its Kernel, and is chiefly eſteem'd for its extraordinary Size; however, ſome delight to propagate it, which with ſeven Years Patience may be brought to bear from a Nut ſet in the Ground, as well as the *Spaniſh* Nut, which comes as well with us as the Philbert; but which kind ſoever we like beſt, may with very little trouble be encreas'd by graffing upon the common Hazles, upon which it takes freely, ſo that in Hedge-rows, and other open Places, where we have common Hazle, we may preſently make an Amendment; it would be well to try ſome in Coppices.

*Obſervations*

## *Obſervations concerning the* Mulberry.

THE black Mulberry ſhould be planted in the Shade, to prevent its Fruit from falling, which it is very apt to do if it be full expos'd to the Sun; it has been obſerv'd in ſome Places, that this Fruit comes extraordinary large, if it be planted and treated in Eſpalier againſt a Wall ſituate to the *North*.

The white Mulberry brings a ſmall Fruit not worth our Care, but the uſe of its Leaves for Silk-worms is very advantagious. A Friend of mine tells me, that they may both be inoculated upon the *Elm* with good Succeſs; it is worth our trial, conſidering the ſlow Growth of the black Sort; nay, he ſays, the Buds will take upon the *Lime* or *Linden* Tree, and bear better than upon the *Elm*; he adviſes the Experiment to be made, and the Expence cannot be very great. I ſhall here inſert a Letter I receiv'd concerning the raiſing of Mulberry-trees.

### *To Mr.* BRADLEY, *F. R. S.*

*SIR*,

'REading one of your monthly Treatiſes of 'Husbandry, I there with Pleaſure 'ſaw a Letter ſent by King *James* the Firſt, 'to the Lords Lieutenants of the Shires, for 'the encreaſing of Mulberry-trees; and likewiſe 'ſeeing it your deſire to encourage ſo beneficial 'a Work at this Time, and examining into 'that Deſign at *Chelſea*, I find, that for want of 'a better Method of raiſing Mulberry Trees, 'they fail in a great Meaſure of that Succeſs 'they might expect, were they rightly inform'd 'of the true Way of raiſing the ſame, for I find 'ſeedling Plants there not above a Foot high, 'two Years old; I have therefore ſent you an 'Account how I have practis'd raiſing them 'from Seed, and the Way how I arriv'd to the 'Knowledge. Being once making a hot Bed 'for Melons, I took two or three Spits of 'Mould under a Mulberry-tree to cover the 'Bed; about a Month after, to my great Sur'prize, came up a good Quantity of Mulberry 'Plants, the which, without Care, grew that 'Seaſon above a Foot high, which I found came 'from the Seed that fell under the old Tree, 'ſince which Time I have annually practis'd 'the making a hot Bed in *February* of a good 'Subſtance, and after covering the Dung with 'good light Mould, have ſcrap'd up the Earth 'from under my old Mulberry-trees, and thrown 'it on, and then cover'd that with a little light 'Earth, and cover'd the whole with Mats, 'keeping it gently water'd, till the Seed ſprout'ed, and then taking the Mats away, I follow'ed the ſame with Water all Summer, and I 'have not fail'd to have great Quantities of 'Mulberry-plants that Summer, ſixteen or eigh'teen Inches high, which I let ſtand all the 'next Winter, and in very hard Weather hoop'd 'and matted the Bed; I planted them out in 'the Spring, and gave them gentle Water'ings till rooted, and found the Succeſs won'derful.

'*Sir*, If you think it may be any Way uſe'ful to the Publick, and pleaſe to inſert it, I 'ſhall ſend what at any Time may fall under my 'Notice,

*From yours*,

J. C.

*Concerning*

## *Concerning Graffing of* Walnuts.

I Have often been of Opinion that a Walnut might be graffed as well as another Fruit-tree, and often wondred that no Body has yet made the Attempt, eſpecially when ſo many have complain'd that the Walnuts about their Grounds were not good, and that their Neighbours had better than themſelves: The large *French* Walnut is to me the beſt, not only for its tender Shell, but its ſweet Taſte and extraordinary Bigneſs; but then indeed it will not keep ſo well as the ſmaller ſort, neither is it ſo great a Bearer, but I conceive by graffing it, it may be ſooner brought to bearing, and in more Quantity than when it grows wild, as we find in many other Fruits.

## *Some Remarks concerning the* Pomgranade *and* Cornelian Cherry.

THis Tree loves to ſhoot very long before it will hold its Bloſſoms for Fruit, and theſe come always at the end of the Branches, which I think proper to mention, becauſe our Gardiners commonly top the Branches, and ſo both deſtroy the Bloſſom and the Fruit, both of which have their Excellencies, the Flower for its beautiful Colour, and the Fruit for its pleaſant Sharpneſs.

The Cornelian Cherry is of two ſorts, the red and the white, but the latter is not very common; the Fruit has an agreeable Tartneſs when it is ripe, but is often gathered green, and put in Salt and Water, to imitate pickled Olives.

## *Obſervations concerning the Fruit called* l'Azeroli.

THis is a kind of Thorn, often call'd the *Spaniſh* Thorn; its Leaf is much larger than the common Whitethorn, but of the ſame Figure; the Fruit is red, and as large as a Cherry, but has a dry Pulp, and is agreeable enough when it is full ripe; its Flower is apt to drop, to prevent which, we plant it in Eſpalier, againſt a Wall expos'd to the *South*; the Graffs will take as well upon Pear-ſtocks, as upon the Whitethorn; or wanting theſe, they will do well upon the Medlar or Quince-ſtock, the laſt of which brings it to bear Fruit very plentifully in a ſhort time: This Fruit makes an excellent Sweetmeat, much us'd in *France* and *Italy*.

There is another ſort of *Azeroli*, whoſe Fruit is half as big again as the former; the Leaf likewiſe is much larger, and of a grey Colour.

The third ſort comes from *Canada*, and is more conſiderable than the others; the Leaf is very large, ſomewhat reſembling that of the Thorn, but leſs cut or notched on the Edges; theſe two laſt ſorts were brought from *France* about thirty Years ago.

The fourth ſort is the white *Azeroli*, which is pretty common in *Italy*; its Fruit has the ſame agreeable Sharpneſs as the former.

## *Particular Proofs of the Sap's Circulation in Plants.*

NOtwithſtanding the many evident Proofs I have given of the Sap's Circulation, I meet with a few who have made firm Reſolutions with themſelves never to believe it, and by the ſame poſitive Rule would pin down the Belief of others with that quaint Way of Reaſoning, that they are aſſur'd there is not any Circulation of Sap in Plants, but they are content to avoid diſputing about it, it is enough that they are not of that Opinion, they laugh at it and drink their Bottle: But I am ſo little concern'd at the Conduct of theſe Men, that I ſhall ſtill continue, as Occaſion offers, to give the World ſuch Inſtances of the Sap's Circulation, as ſhall occur from Time to Time to my Memory, for the ſake of thoſe who have already improv'd their Skill in Planting, from the Knowledge they have of it, and thoſe others who are beginning to think of it.

The Relation which I deſign at preſent is of a Lime Tree in *Holland*, which is now growing with its firſt Roots in the Air, which have ſhot out Branches in great Plenty, at the ſame Time that its firſt Branches of the Head are converted into Roots, and ſuccour the Tree: I then deſire to know, if the Sap is not every where at once in the ſame Tree, and whether all the Sap of that Tree has not the ſame Intent towards Vegetation? Thoſe, who ſay the Sap is in the Root all the Winter, ſeem, from this Inſtance, to be miſtaken; and if it was not every where alike in the Tree, how comes it that the branched Part of the Tree exchanges its Leaves for Roots, and the Roots that were before, change their Fibres for Leaves and Branches? Is it then not plain, that the Sap is the ſame in every Part of the Tree at all Times, and is conſtantly acting equally throughout the whole Plant?

But that we may not go ſo far as *Leyden* for a Proof of this Relation, Mr. *Fairchild*, Mr. *Whitmill*, and ſome others, have began to put in practice the proper Method for giving us ſome Examples of it at Home, and that thoſe who are too remote from theſe Gardens may not want the Benefit of ſatisfying themſelves at an eaſy Rate, I ſhall here lay down two or three Ways of performing the Operation.

We muſt firſt make choice of a young Tree of one Shoot, either of Willow, Alder, Elm, Lime or Linden, or indeed any other Tree that will take Root eaſily by laying, and bending the Shoot gently down to the Earth, we muſt pin down the extream Part of the Shoot in the Earth in the proper Seaſon for making Layers, and let it remain without other Ceremony till it has taken Root; your whole Plant will then make the Appearance of an Arch or bent Bow above the Ground, till the new Roots are well ſtruck; then we muſt dig about the Original or firſt Root of the Plant, and gently raiſe it out of the Ground till we bring the Stem it adheres to to an upright, which muſt be help'd by a ſtrong Stake, for the Stem alone will incline to bend.

When this is done, we muſt prune thoſe Roots that are rais'd into the Air from the Bruiſes and Wounds they receiv'd in digging them up, and apply ſome of the following Mixture warm with a Bruſh, to the pruned Parts.

Take two Ounces of Bees Wax, two Ounces of Tallow, one Ounce of Turpentine, one Ounce of Rozin, melt them together in a Pipkin, and apply the Mixture moderately warm, as directed before.

The Tree being thus dreſs'd, prune off all the Buds or Shoots that you can find upon the Stem of the Plant, and dreſs the Wounds with the above Mixture, to prevent any collateral Shootings that might happen, and might thereby render the Stem diſagreeable to the Sight; beſides, were the Stems of theſe revers'd Trees to be ſuffer'd to ſhoot collaterally, the original Root, which we now have brought into the Air, will not be ſo apt to ſhoot freely.

On the other hand, we muſt have regard that the new growing Roots of this reverſed Plant be well nouriſh'd, and therefore we muſt cut away that part of the Shoot which was the Layer, a little below the Earth, to give the better Nouriſhment to the Stem and its tranſlating Roots; but when we cut off the Top of this Layer, let the Wound be dreſs'd with the Mixture beforemention'd.

Fig. I. Is the Tree in its natural Growth.

Fig. II. Is the ſame Tree bent down for laying the Top Branches in the Earth.

Fig. III. Is a View of the ſame Tree when its original Root is brought into the Air after it is dreſs'd, and begins to ſhoot.

When we are come thus far, we may rather expect wild Shoots from the original Roots, than thoſe that would bear Fruit, if we were to ſerve a graffed Fruit-tree after the ſame manner; for the Graff could not communicate in the revers'd Way any more of its Properties, than a Wilding could give to a Graff in this common Way of ordering Trees; but it is not impoſſible to graff the original Roots which are in the Air, with any Cion of the ſame Tribe, no more than to do the ſame Work upon common Shoots of a Tree, as I have experienced.

From the ſame Way of Reaſoning, I conclude, that we might inarch two Trees into one another, in ſuch a manner, that where they had taken good hold of each other, the Root of one of them might be taken out of the Ground and rais'd to the Air, ſo as to make one erect Tree. For Example, if we inlay an Elm into an Elm, as in Figure IV. when they are well join'd, take the Root of one of them out of the Earth, and tye it to a Pole or Stake, as in Fig. V. and I ſuppoſe it will have an extraordinary Effect; but I cannot yet determine its Succeſs but by Reaſon only; but though this has never been tried that I know of, yet I am not ſo much ſway'd by the Carrier's Rule, but that I may find out as good a Path for my Purpoſe as the common Road.

If this ſucceeds, as I doubt not but it will, we ſhall not want room for Speculation, how far the Earth, or how much the Air influences a Plant: In Fig. V. from A. to B. I ſuppoſe, from what I have obſerv'd in Nature, that the Shoots 1, 2, 3, 4, 5, 6, will be gradually leſs than one another. As for Example, 1 the longeſt and thickeſt, 2 a Size leſs than 1, 3 a Size leſs than 2, and ſo on to B, where the two Trees are join'd; for as the Stem from A to B does naturally decline in its Bigneſs, ſo it does not poſſeſs ſo many Veſſels on the Top as at the Bottom. And again, the Sap-Veſſels near the Root are ſooner and better furniſh'd, than thoſe that lie more remote from it. But when we come to the joining of the two Plants at B, and go up gradually to C, we ſhall find juſt the Reverſe of what we obſerv'd before; the Branch 7, I ſuppoſe, will be the leaſt, 8 bigger than 7, 9 bigger than 8, and ſo on to the Part which acted before as a Root. And again, that all the Branches from B to C will be oblig'd to turn up to the Air, though their Buds were revers'd; and ſo it is as natural for me to ſuppoſe, that the Root D will ſhoot out Branches and Leaves, as that in Fig. III. which we have already an Inſtance of in *Holland*.

This laſt Experiment has been try'd ſince the firſt Impreſſion of this Work, and ſucceeds very well.

## *Catalogue of new Graffings* Anno 1723, *by Mr.* Fairchild *and Mr.* Whitmill *both ingenious Gardiners at* Hoxton.

*Mr.* Fairchild'*s are*

1. The *Terebinths* upon the *Piſtachio*.

2. The *Cedar* of *New England* upon the *Virginian Cedar*.

3. The *Cedar* of *Libanus* upon the *Larix* or *Larch-tree*, which is the more extraordinary, ſeeing the *Cedar* is evergreen, and the *Larix* drops its Leaves.

4. The *Caſena*'s, one Sort upon another.

5. The *Spaniſh Barba Jovis* upon the common ſort.

6. The yellow *Indian Jeſſamine* upon the *Engliſh* yellow *Jeſſamine*.

7. The *Oleanders* upon one another, ſo that he has three or four Sorts upon one Plant.

8. *Geranium* with variegated Leaves, upon a *Geranium* with a ſcarlet Flower, from whence it is reaſonable to ſuppoſe, all the arboreſcent Kinds of *Geraniums* will take upon one another.

9. The *Spurge Laurel* upon the *Mezereon*, the firſt ever-green, the other not; in *January* this makes a pretty Shew, to ſee the beautiful Bloſſoms of the *Mezereon* intermix'd with the variegated Leaves of the *Spurge Laurel*.

10. The *Lilac* upon the *Perſian Jeſſamine*; ſo likewiſe the white, purple, and blue *Lilacs* may be graffed or budded upon one another.

11. The *Carolina Haw* upon the common *Hawthorn*.

12. The *Red Curran* upon the *Black Curran*, but the Taſte of neither Fruit is changed, nor any Property alter'd, no more than any other particular Fruit loſes its Properties by being engraffed upon a wild Stock.

13. *Curran* upon the *Gooſberry-leav'd Curran*.

14. *Live Oak* of *Virginia* upon the common *Engliſh Oak*.

15. *Ilex* upon the common *Engliſh Oak*.

16. *Holm-Oak* upon the *Engliſh Oak*.

17. *Cork-Tree* upon the *Engliſh Oak*, and ſo may be graffed all Kinds of Oaks upon one another.

18. The *Anti-Euphorbium*, upon the *Senecio*, *Afric*, *Arboreſc*, &c.

19. The *Variegated Tree Sedum* upon the common *Tree Sedum*, and likewiſe ſeveral other kinds of *Sedum* upon the *Tree Sedum*.

20. *Cotyledons* of ſeveral Kinds upon the *Tree Sedum*.

## *Graffings by Mr.* Whitmill.

21. The *Fig* upon the *Mulberry*.

22. *Vines* upon *Vines*.

23. The *Cockſpur Haw* upon the double *Bloſſom Haw*.
24. The *Paſſion Tree* upon the Vine.
25. *Myrtles* upon one another, ſeveral ſorts.
26. Abricots upon the Peach.
27. Cherries upon the Peach.
28. Laurel upon the Plum.

Beſides theſe Graffings, which anſwer the End of propagating curious Plants with little Trouble, there is one Thing very remarkable which happen'd in Mr. *Fairchild*'s Garden, from the budding or inoculating ſome of the Paſſion-tree, whoſe Leaves were ſpotted with yellow, into one of that ſort of Paſſion-tree which bears the long Fruit; now, though the Buds did not take, yet in a Fortnight's time after budding, the yellow Spots began to ſhew themſelves about three Foot above the Inoculation, and in a ſhort time after that, the yellow Spots appeared on a Shoot which came out of the Ground from another part of the Plant. Is not this as plain a Proof of the Sap's Circulation, as the Inſtance of the Jeſſamine mention'd before, or the Inoculation of the Small-Pox, is an Inſtance of the Circulation of the Blood? For my part, I can't ſee how any Objection can be made againſt the many evident Proofs that have been given of it, as well in the caſe of reverſing of Plants, and rejuvenizing them, as in ſeveral others mention'd in my former Works; but indeed I am not inſenſible that when I write, my Works fall into the Hands of two ſorts of People, the one, who, deſiring to be inform'd, are curious and inquiſitive, and would willingly learn; and the other, who finding themſelves Men by the Number of their Years, are either aſham'd of asking Queſtions, leſt they ſhould ſeem ignorant, or elſe think that their Age is a ſufficient Warrant for their Obſtinacy, and talking of Nonſenſe. For the firſt, I have that Generoſity, that I ſhall always, as far as my Time will permit, think my ſelf well employ'd in inſtructing them; but for the latter who are ſure they know enough already, and reſolve againſt Improvement, they are only fit to accompany one another.

But there is one Queſtion which is a great ſtumbling Block to thoſe who are but beginners in the Knowledge of Circulation of Juices, and that is, how long Circulation is performing? (to uſe their own Terms) In anſwer to which, they muſt underſtand that the Motion of the Juices is conſtant, and that whatever impedes it, or quickens it beyond its conſtant Courſe, tends to weaken the Plants, for the Secretions are not then rightly made; beſides, the Motion of Juices is not in every Plant alike, in ſome quicker, and in others ſlower; for the Circulation of Blood in one Animal, is not perform'd with the ſame Rapidity, that it is in another, as we find by the Beats of the Pulſe; the Motion of the Pulſe of a Snail, or of its Heart, as one may obſerve by taking off the Shell, is ſix or ſeven Times ſlower than the Beats of the Pulſe in an human Body; and the Pulſe of an human Body is more than that ſlower than the Pulſe of a Squirrel, ſuppoſing all three to be in an equal State of Health. Now, as this Circulation muſt be continual from the very firſt of Life to the Moment of Death; ſo we muſt conſider too, that the Food or Nouriſhment receiv'd every Day, adds to the Juices that were in the Body before, which muſt either encreaſe the Bulk of the Body, or elſe be the occaſion of a Diſcharge of Juices from that Body, or both together; ſo that were it poſſible to fix upon any one Drop of Juice in a Body, which one might ſuppoſe was the Leader of the reſt through all the Channels, till it gain'd the Place it firſt ſet out from; what with the new Nouriſhment that would be receiv'd into the Body, and the Parts that would be ſecreted from this Drop, in its Paſſage, ſuch Drop as well as all the reſt would be ſo chang'd and alter'd, as to be no more the ſame it was at firſt; but if by the Queſtion they ask, they mean, how long the infected Matter inoculated will be before it ſhews itſelf in the remote Parts of the Plant? Then we anſwer, that it is parallel with the Caſe of inoculating the Small-Pox on human Bodies, which is ſooner or later in ſhewing the Poiſon, as the Body is in more or leſs Vigour when the Inoculation is made; or elſe from the Force or Power of the Poiſon inoculated, which ſometimes is not ſtrong enough to engage the whole Body of Juices, and then does not appear at all, or very late; it is ſometimes three Days, ſometimes five or ſix, and ſometimes ten Days or more, before the Inoculation of the Small-Pox has diſpers'd itſelf over the Body, and infected the Blood enough to ſhew itſelf; and in Plants, we find that in the caſe of the Paſſion-tree abovemention'd, it was a Fortnight before the yellow Spots appear'd, and in ſome Plants it is longer.

It is remarkable that the yellow Spots began firſt to ſhew themſelves in the new Branches, which are of very quick Growth, ſhooting about three Inches and a half *per* Day: I once meaſur'd one Shoot of a Paſſion-tree, which in its Growth, from the beginning of *May* to the end of *September*, was thirty two Foot in Length; and it is in theſe quick Growers that I find the Variegations, after Inoculations, ſooneſt ſhew themſelves.

## CHAP. VI.

*Concerning the propagating and hardening of Exotick Plants and Fruits by Graffing, in a Letter communicated by Mr.* Fairchild *from a Gentleman in* Surry; *to which is added, ſeveral uſeful Remarks upon Inarching, Graffing, and Budding.*

*A Letter to Mr.* Fairchild *at* Hoxton.

Mr. *Fairchild*, *Feb.* 24. 1721-2.

'I Write you this, to claim your Promiſe of trying any Experiments that I ſhall direct you in Writing. But I ſhall not treat the moſt rational Gardiner I have ever met with, in the ſame manner I would an ordinary one: Nor ſhall I content my ſelf with barely directing what I would have tried; but I ſhall alſo explain to you the Reaſons I go upon, and the End I propoſe by ſuch like Experiments. You know I have been ſome Years propagating and collecting all the ſeveral Species and Variations of Trees, both *Engliſh* and Foreign, that I can any where 'procure, and make to live abroad with me in 'Winter; the Pleaſure and Uſefulneſs of which 'I need not explain to you. And I was laſt 'Summer conſidering of the ſeveral Ways of 'raiſing and propagating of Trees, and particu'larly by uniting them together, whether by 'graffing in the Cleft, in the Bark, by Appli'cation to the Side (which I think you call 'Whip-graffing) and by Inarching, and that 'too either by Application to the Side (as is 'now of late practis'd) or a Top in the Cleft, '(as was practis'd by the Ancients) or Inoculat'ing, or Budding. For as to the Method of 'graffing by Inciſion, I do not know what to 'think of that, as it reſts on the Authority of a '*Roſicruſian* Philoſopher. Firſt then, I obſerv'd, 'that it was a Maxim receiv'd among you, found'ed on Experience, that Trees of the ſame Ge'nus or Family might be united together (a 'Truth that was very well known to the anci'ent Gardiners) and by obſerving particular In'ſtances, I found that thoſe of the more gene'ral Genus's, or remoter Kindred, would do 'upon one another alſo; and that for Inſtance, 'not only all ſorts of Peaches would do upon 'one another, and all ſorts of Apples, but Peach'es too would take upon almoſt any ſort of 'Plums; Pears upon Quinces as well as Pears, 'and even on the White-thorn and the Quick'beam; Almonds upon all ſorts of Plums as well 'as Peaches, and ſome ſay on the White-thorn; 'Medlars and Azaroles on one another; and up'on the Quince, the White-thorn and the Pear. 'And I obſerv'd the ſame to be true likewiſe in 'Foreſt-trees; and that the Aſhes, for Example, 'would do upon one another, and ſo would the 'Oaks; nor would the one's being ever-green, 'and the other not, alter the Caſe, as you ſhew'd 'me in the Experiment of the Live Oak of '*Virginia*, graffed upon the common Oak. From 'theſe Obſervations I concluded, that ſeveral 'Exotick-trees that were hard to propagate, 'might have Stocks found they would grow 'upon, and particularly, I recommend the Ter'pentine to you (which you complain'd you 'could not propagate) to be graffed upon the '*Piſtaccia*, which you ſay did take, but went 'off again, doubtleſs, becauſe your Stock was 'too ſmall (the *Piſtaccia* being very pithy when 'it is ſmall). I hope when your Stocks are a 'little bigger, it will have the deſir'd Effect, 'becauſe *Tournefort* ranks them both under the 'ſame Genus, and the Ancients us'd to graff the '*Piſtaccia* on the Terpentine to meliorate the 'Fruit: And I hope you will go on trying other 'Things, even where the Alliance appears re'mote, being warranted by the Experiments a'bovemention'd; and ſo we may in time ſee 'how far this Matter will go. And though I 'know very well that you and others have tried 'to make Trees take upon one another, that 'have no Similitude in the Flower, Fruit, Seed'Veſſel, or Seed, which are the moſt natural 'Diſtinctions of Plants, and have met with no 'Succeſs in your Trials; yet becauſe ſome An'cients of Credit have aſſur'd us, that the Pome'granate and Carob may be graffed on the Wil'low; I beg of you to try them during this 'Seaſon: That Tree may have ſome hidden Re'lation to them, though not in its Seed-Veſſel 'or Fruit, or may have ſome other peculiar 'Qualification for uniting with them, and if 'they do join it, may lead us to other Things:

‘ Theſe were the firſt Thoughts that occurred to
‘ me in this Matter.

‘ Then I obſerv'd further that the graffed
‘ Tree partook ſomewhat of the Stock it was
‘ graffed upon; that the Pear, for Example,
‘ graffed on the Pear, was a larger Tree than
‘ one graffed on the Quince: And I conſider'd
‘ particularly of the Almond, which Mr. *Ray*
‘ ſays in his Time ſeldom produc'd ripe Fruit
‘ with us, as wanting a warmer Clime. But
‘ it is very well known, that ſince the *Jordain*
‘ Almonds have been graffed upon Plum-Stocks,
‘ they bear very well in *England*; and this made
‘ me ſuſpect, that a hardy Stock might harden
‘ a tender Graff; but being unwilling to build
‘ too much on one ſingle Experiment, I deſir'd
‘ you laſt Summer to make Trials in that Way.
‘ And as the Truth of this is plainly confirmed
‘ this Seaſon in your Garden, by the flouriſhing
‘ Appearance of the *Canary* Almonds graffed on
‘ the Plum, while the Seedlings of the ſame Species
‘ of five or ſix Year's Growth appear all
‘ nipp'd and ſhrivell'd, notwithſtanding the
‘ Mildneſs of the Winter; we are no longer
‘ now to doubt, but tender Trees are to be
‘ harden'd, to ſome Degree at leaſt, by hardy
‘ Stocks. How far this Matter may be carried,
‘ can only be determined by Experiments,
‘ which, I am ſure, are well worth the making,
‘ conſidering the Advantage and Pleaſure it ſeems
‘ to promiſe, by bringing new Fruit-trees into
‘ our Gardens and Orchards, and new Foreſt-trees
‘ into our Wilderneſſes and Thickets, and
‘ above all, new Means of contemplating the
‘ Wiſdom and Goodneſs of God, the nobleſt
‘ End of all Philoſophy: But all we can reaſonably
‘ depend upon in this Matter, is to have

Trees of the ſame Degree of Tenderneſs with thoſe abovemention'd, harden'd, as they are, by the like kind of Stocks. Thus, for Example, as the *Piſtaccia* in ſome Years, and in ſome Expoſures, will bear Fruit with us abroad, could we find a proper Stock for it; why ſhould it not be brought to bear as well with us as the graffed Almond doth? And I ſhall be glad to ſee it tried on the Hazle and on the Plum. The Ancients ſay, it did with them on the Almonds; if that be true, I think it muſt do on the Plum too: And pray let us try it on the Walnut alſo. The like almoſt might be expected from the Olive, could we find a proper Stock for it: I am afraid the Plum is too remote; but perhaps it will take as well with us on the Oleaſter, as it did with the Ancients, and the Oleaſter is hardy. And why ſhould not a hardy Stock bring our tendereſt Figs to ripen as well in Standards, as they do now againſt a Wall? Perhaps the true or Fruit-Sycamore would be a good Stock for them; and as that bears a Fruit between a Fig and a Mulberry, it will it ſelf perhaps take on the Mulberry, and ſo by Conſequence would the Fig, which I ſhall be glad to ſee tried. The *Greek* Gardiners ſay it ſucceeded with them; and might not ſome ſort of early ripe Plums be probably found to make the latter Peaches, Abricots and Nectarines bear as well in Standards, as the *Bruſſels* Abricot does, I think, on one Sort only to Perfection? though, probably, from another Cauſe. For this, and other Purpoſes, I am now collecting all the ſorts of Plums I can get; as I hope to do another Seaſon the Pears and Apples. For the like may be expected too of the tenderer Pears.

‘ And may there not poſſibly be found ſome ſmall ſorts of Plums and Pears, that may accelerate and meliorate thoſe Fruits, as the *Paradiſe* Stocks do the Apples? Thus far the Analogy goes, and Nature is uniform. But let us not ſtick here, though the Experiment of the *Spaniſh* Jeſſamine graffed on the *Engliſh* one may ſeem to diſcourage us, the Effect of a more compact and woody Stock may be very different; however, let us not refuſe to go as far as we can, if we cannot go as far as we would. Let us proceed therefore to try what Nature will bear: And firſt, I deſire you to graff and inarch the Orange Citron and Lemon on the Apple, eſpecially the *Paradiſe* (and if you pleaſe, on the Quince and the Pear:) Both thoſe Fruits are round and juicy, and include callous Kernels of much the ſame Shape; and, I think, are much more alike, than the Haw and the Pear, or the Almond and the Plum. Pray try likewiſe the Pomegranate on the Apple, Quince, and Pear; and ſo likewiſe might the Papaw and Calabaſh-tree, if we had them; and the *Malabar* Plum, the *Weſt-Indian* Broadleaf, the Soap-tree, the Mixis, the Jujubes, and the Mango would, probably, do upon the Plum. The Azedarach from the Similitude of its Flower, according to the Method of *Tournefort*, might be tried on the Maple; and according to Mr. *Ray*'s Method, on the Plum, from the Likeneſs of its Fruit; and ſo might the Nutmeg and the Cinnamon on the Plum, or the Walnut; and the Caſſia Fiſtuloſa, and the Tamarind on the common Acacia, as they are all three Siliquiferous: But I am afraid few or none of theſe are now to

‘ be had. I am endeavouring to procure moſt ‘ of them from abroad: The Coffee, if we could ‘ get it, might poſſibly take upon ſome of our ‘ Berry-bearing Tribe, ſuch as the Whitethorn, ‘ the Quick-beam, and Berry-bearing Alder; ‘ and ſo, perhaps, would the Saſſafras. But I ‘ deſire you to try the Carob on the common ‘ Acacia and the Aſh, and the Terpentine-tree ‘ on the Plum, as I have directed the *Piſtaccia* ‘ to be, and any other that your own Reflecti‘ons may point out to you. I hope you will ‘ be ſo kind as to try what you can this Graf‘fing-Seaſon of ſuch as are fitteſt to be tried ‘ that Way: Thoſe of thick and ſappy Barks, ‘ in the Bark, others in the Cleft, and by Whip‘graffing; and ſuch as have thin and ſappy ‘ Barks, by budding, in the Seaſon for that; ‘ without forgetting your Method of inarching, ‘ which ſeems to be the ſureſt Way you have. ‘ But I ſhould be glad to ſee an accurate Trial ‘ made of the ancient Method of inarching in ‘ the Cleft; by which *Columella* (a Writer of ‘ great Reputation) aſſures us, that any Tree ‘ whatſoever may be propagated on any other, ‘ and appeals to Experiments for the Truth of ‘ it. I will, if you deſire it, explain this Me‘thod of theirs in another Letter. Farewel.

## *POSTSCRIPT.*

'I Shall here collect together all the Experiments I have recommended to you above; and I hope you will loſe no Time in trying them.

'The Terpentine-tree is to be graffed on the Piſtaccia, and on the Plum.

'The Pomegranate on the Willow, the Apple, the Pear, and the Quince.

'The later ripe Abricot, Peach, and Nectarine, on early ripe Plums.

'The tender late ripe *French* Pears, on early ripe *Engliſh* Pears.

'The Carob on the Willow, the Aſh, and the common Acacia.

'The Orange, Lemon, Citron, Papaw, and other Pomiferous Exotick-trees, on the Apple, Pear, and Quince.

'The Mixis, Azedarach, Soap-tree, and other Pruniferous Exoticks, on Plums.

'The Saſſafras, the Coffee, and other Bacciferous Exoticks, on the Berry-bearing Alder, the Quick-beam, and the Whitethorn, and alſo on the Service, ſince this will do on the Whitethorn.

'The Caſſia Fiſtuloſa, the Tamarind, and other Siliquiferous Exoticks, on the common Acacia.

'I have, as far as my Haſte would allow, endeavour'd to confirm my Reaſoning about theſe Matters by Experiments of the Ancients, becauſe, I think it more reaſonable to credit them in Matters of Fact, than in any

'thing elſe; and ſome of thoſe Writers are
'handed down to us for Men of great Honour,
'Parts and Learning, and therefore deſerve our
'Credit.

'I forgot to mention a Method the Ancients had of Graffing by Terebration, or Borings, which they us'd in the Vine, and ſome others. They graffed the Walnut between the Bark and Wood, which, I ſuppoſe, is your Rind-graffing; but they ſay it often went off; and they rather, I think, recommend graffing it in what they call the Fleſh of the Root; and they alſo graffed ſome other Trees in the Root.

'I omitted to inforce the Experiment of the Orange and Lemon on the Apple, by the Example of the Ancients, who aſſure us, the Lemon and the Citron took with them on the Apple; and ſo did the Pomegranate on the Apple, and on the Quince and the Pear; and the Quince on it. The *Roman* Husbandmen graffed the Fig on the Mulberry, as well as the *Greeks*; and ſo they did the Mulberry on the Fig: They alſo propagated the Mixis on the Plum, the Whitethorn and the Service: They graffed their Apples too on the Quince, which improved them. And they tell us, that any Tree would take with them on the Quince; though ſome affirm, that the Quince would do upon nothing; which Properties they obſerv'd in no other Tree.

'I have ſelected theſe out of a great many more Graffings that are recorded by the Ancients, as being fitteſt for my preſent Purpoſe; though perhaps the reſt of them may be worth our conſidering; and I will go a little out of my Way to inform you of one thing, becauſe

'It may encourage you in ſome of your Experiments of another kind. Several of the ancient Writers of Gardening deſcribe the Fruit produc'd by the Apple graffed on the Quince, (which they call'd *Melimela*, or Honey Apples) as a very different kind from thoſe graffed on the Apple: And they give us other Inſtances of the Fruit being alter'd by the Stock.

'I cannot help adding this Maxim of theirs, which, they ſay, was generally held for true, that any Tree was to be graffed upon any other Tree which was like it in the Bark; but if there was a Likeneſs in the Fruit too, there could be no manner of doubt of the Succeſs. Go on, and proſper.

## *Anſwer to Mr.* Fairchild *concerning the foregoing Letter.*

*S I R,*

THE *Memorandums* you ſent me, have given me an extraordinary Satisfaction, as it is plain they were penn'd by a Perſon of Learning; and I am very glad to find ſuch as are Men of Letters, begin to bend their Minds to the Study of Vegetables, and their Improvement. By making ſuch Experiments, as are offer'd in the Paper you ſent me, we ſhall diſcover whether the ancient or modern Authors are moſt to be relied on; for my own part, I am ſenſible, that many things related by the ancient Authors are Truths, but they are not without the contrary in ſome of their Works, which, perhaps, might happen from their too great Faith in *Hearſays*; the Age was then, it may be, not ſo much given to Diſſimulation as it has been in our Times, for which Reaſon, I cannot ſo much blame the Perſons, who wrote in thoſe Days for believing Reports which fell in their Way. The Gentleman who propoſes theſe Experiments to you, is, in my Opinion, much in the right to have theſe Trials made, that the World may be ſatisfied how far we may give Credit to the *Ancients*; or, at leaſt, that we may judge how much we have improv'd upon their Thoughts.

The Ancients have, without doubt, given us ſome good Inſtances of their Knowledge in Gardening; but, as I obſerv'd before, their Works are not all founded upon the ſame Strength of Truth, ſo that we have been at a loſs to pick out their moſt beneficial Matter: But what you are now upon, will help us to find out how far their Knowledge went in theſe Matters; and if that really proves to be great, we muſt next conſider, whether our modern Practice exceeds that of the Ancients; or, whether we muſt ſubmit to them.

You are very ſenſible, when we ſpeak of the Works of Men, there is room enough to queſtion the Veracity of the Authors; and to our Sorrow, it is much to be queſtion'd in the Writings of our Times, when there is ſo much Deceit reigns among us, that a Man is ſcarce to be credited by his deareſt Friend, or neareſt Relation, without good Witneſſes: It is neceſſary therefore, as well for the ſake of the Writings of our Times, as for the explaining of the Works of the Ancients, that we follow Experience, for that will admit of no Contradiction.

I am not of the Opinion of ſome Men, who will not allow the modern Practice to be ſuperior to that of the Ancients, no more than I can ſide with thoſe, who will not allow that a Scholar may become more learned than his Maſter, or a Son be a better Man than his Father: There is the ſame Chance for excelling our Predeceſſors or Teachers, as there is for us to be inferior to them in our Learning or Judgment; nay, the Balance ſeems rather to turn on the firſt ſide; for thoſe, who have Age, Learning and Experience on their ſide, give their Scholars ſuch Rudiments for their Government, as are well digeſted; and if ſuch Rudiments make their due Impreſſion upon, or are receiv'd by the Genius of the Scholar, that Scholar may be ſaid to enjoy in his younger Years the digeſted Experience of his Maſter, and has yet a full Age before him, to improve upon his Maſter's Experience. Now where the Maſter is good, and the Scholar receives Inſtruction carefully, there is little room to doubt, but the Scholar will out-do the Maſter, without leſſening the Maſter's Character.

The Arts of Husbandry and Gardening have improv'd very much in the few Years I have liv'd in the World; and when I compare the modern Practice with that of the Ancients, there ſeems to be a very wide Difference between us and them; though we muſt at the ſame time acknowledge, that from ſome of the ancient Practice we have taken ſome conſiderable Hints: But then on the other hand, the Ancients have many Things among them, which Experience has prov'd to be unnatural, and many others which are not yet either ſet aſide, or confirm'd. Now at this rate, where Men have Reaſon to doubt of any thing of any Author, or take every thing for granted, the Caſe is hazardous,

zardous, therefore let us ſtill preſerve our Way of Practice to ſpeak from Experience; your Experiments upon the Letter you now ſent me, will help to explain the Matter, and open us a new Door to Knowledge.

I have kept you thus long upon this Head, becauſe of our frequent Converſation upon Points of the like Nature. Let me now proceed to give you ſome few Thoughts and Obſervations concerning Graffing, Inoculating and Inarching one kind of Plant upon another.

You have told me that the Miſletoe is of two ſorts, *viz.* one Male, which never bears any Fruit, and the other Female, which will bear Berries at three or four Years old; and, I think, you ſay, that the Bloſſoms of both are very different; this Plant is of a very ſingular Nature, and deſerves to be enquir'd into. I wiſh you would try the budding or graffing of one ſort upon the other, and prepare to ſow ſome of it at the proper Seaſon upon Plants in Pots, that we may try it by Inarching.

I obſerve, that it will grow by Seed almoſt upon any ſort of Tree, though the Juices of ſuch Trees as it is propagated upon are of different Natures, but it will not grow in Earth by any Means; now the Growth of this Plant upon every Tree that we ſtick the Seed upon, is rather graffing or budding, than ſowing, if we obſerve the manner of its firſt laying hold of the Tree, it becomes incorporated with the ſpongy Parts in the Bark of a Tree, as an Eye or Bud does by Inoculation.

As far as I can yet think of the Matter, beſides inarching one ſort of Miſletoe upon the other, we might poſſibly make it take by inarching

ing either ſort upon any kind of Tree whatever: The Experiment will not give you much Trouble; and to be certain whether it will ſucceed or not, will give me great Satisfaction; for it will furniſh us either one way or other with good Hints, as I ſhall take Occaſion of mentioning hereafter, when I am certain whether it will take or not.

*2dly*, I would deſire you to inarch the double or ſingle Stock Gilly-Flower upon the Wall-Flower, for they ſeem ſo near a-kin, that I think it reaſonable enough to try the Experiment among the reſt.

If it ſhould ſucceed, you may perhaps preſerve the Stock Gilly-Flowers longer than they uſually laſt of themſelves; and it may be, you may procure ſuch Seed thereby, as may produce ſome new Variety.

Our curious Friend Mr. *Whitmill* of *Hoxton* ſhew'd me ſeveral Curioſities in graffing, which I had not obſerv'd before, and had extraordinary Succeſs.

The ſingle and double Bloſſom Dwarf Almonds were growing upon the Muſſel Plum; and ſince that will do, I am perſuaded the ſweet and bitter Almonds will take upon the dwarf Almonds; and then I ſuppoſe we may have bearing Almond-trees in very little room; but I have hinted at that before.

I cannot help obſerving to you, Mr. *Whitmill's* Contrivance for ſuch as have ſmall Gardens, that upon a few Trees, they may have moſt of the beſt ſorts of Fruit: Indeed the Trees will not laſt ſo long by ſuch Practice; but it is making the moſt of a little, and is a great Improvement for a little Spot of Ground: He has a Peach-tree, whereon are now growing, the Abricot, the Nectarine, and the Cherry, and the Plum too might as well be there as the reſt, as the Peach it ſelf is graffed upon the Plum; and the Almond likewiſe would do as well as any of the others; then we have on one Tree ſix different ſorts of Fruit, ſome of which are pretty remote from the reſt.

The Peach is rough coated, a rough Stone, and its Footſtalk ſo ſhort, that it can hardly be call'd ſo.

The Cherry, contrary to the Peach, brings its Fruit in Bunches or Cluſters, hath a ſmooth Coat and Stone; its Stalks are very long, and the Fruit tranſparent.

The Abricot has a rough Coat and ſmooth Stone, and its Leaves and manner of ſhooting very different from the Peach; and nothing that I can obſerve in it the leaſt reſembling a Cherry, but the Smoothneſs of the Stone.

Then the Plum has a longer Stalk than either the Peach or Abricot; ſome ſorts of Plums have Footſtalks almoſt as long as thoſe of the Cherry; the Coat or Skin of the Plum ſmooth, but leſs tranſparent than that of the Cherry by means of the Duſt it is cover'd with, which we call the Blue of the Plum; and then the Leaves and Shoots are different from either the Cherry, Peach or Abricot.

The Nectarine indeed has a near Semblance of the Peach in every thing but the Skin or Coat of the Fruit, which in the Nectarine is always ſmooth, like that of the Plum; but then, when we compare it with the Plum, the Leaves and Shoots are very different from one another; the Stone of the Nectarine is rough, and that of the Plum always ſmooth. The Almond moſt reſembles the Peach; its Coat and Stone is rough, and there ſeems little more Difference between them, than that the fleſhy Part which covers the Stone of the Almond is not for eating, as that of the Peach always is; ſo that I have thought ſometimes when I have eaten a Peach, whoſe Fleſh was dry and hard, that the Kernel of the Fruit might be as good as an Almond, or that it was of the Almond Race.

Upon mentioning this to a Friend, he deſires you will try the Peach, the Plum, the Cherry, the Nectarine, and the Abricot upon the Dwarf Almond, to make them bear in a narrow Compaſs; for the Dwarf Almond will take upon a Plum, and he concludes the Plum will do upon the Dwarf Almond; and if ſo, the others may as well be graffed upon it as the Plum.

Thus far for Stone Fruit one upon another, though there are wide Differences ſeemingly between one and the other; ſome of them almoſt as wide as between the Walnut and the Peach, which one may try for Experience ſake, although the Walnut be a Tree which bears Catkins or Juli, and the Peach does not; but yet the Peach, according to your Obſervation, has two ſorts of Bloſſoms upon one Tree, *viz.* what are commonly call'd falſe Bloſſoms, and Fruit Bloſſoms; or in our Terms, male and female Bloſſoms.

I remember once you obſerv'd to me, that the Gooſberry would take upon the Curran, and the Curran upon the Gooſberry; which is uniting Families, which are ſeemingly more remote than what we have mention'd, the one being a bunch'd Fruit, and the other a ſingle

Berry; but I remember you well obſerv'd at that Time, that you thought it was not the bare Appearance of the Fruit which confirm'd their Relation to one another, but the Likeneſs of the Seeds or Kernels which were enclos'd in ſuch Fruits; for that the Seed or Kernel was what produc'd Trees of the ſame Order, and that the Pulp or outſide Fleſh, which encompaſs'd ſuch Seeds, was only provided by Nature as Coverings for them, or to give them their juſt Nouriſhment, and full Degree of Perfection for Germination or Sprouting, when they were put into the Ground; and this ſeems ſo reaſonable, that it is worth our while to conſider further of it, notwithſtanding there are ſome who hate new Diſcoveries, when they are not their own, and deny every thing which they cannot comprehend: But you have too much Reaſon on your ſide to give Way to any Opposers of that Race. By the by, the Plum, Peach, Nectarine, Almond, Abricot and Cherry, have all Kernels ſo much after the ſame manner, that your Reaſoning ſeems to determine why they agree ſo well together; and ſo has the Gooſberry and Curran.

For Reaſons of this Nature, one of your curious Brother Gardiners has this Year dreſs'd up a common Hawthorn with Graffs of the *Holly*, *Piracantha* and *Medlar*, as bearing Seeds much like one another: Nay, he has likewiſe put the Roſe upon it, for the ſake of the Likeneſs the Roſe Fruit bears to that of the Hawthorn; and as they are both prickly on their Wood, none of theſe Trials, in my Opinion, ſhould be diſcourag'd, for whether they ſucceed or not, our Underſtanding is improv'd by them; the

Pear I have ſeen grow very well upon the Hawthorn, or Whitethorn, in two or three Places.

The ſame Perſon is likewiſe experiencing, whether the Orange will not take upon the Apple, or the Apple upon the Orange, and if the Pomgranate will not join with the Medlar.

*I am yours*, &c.

R. BRADLEY.

## *POSTSCRIPT.*

Pray examine what Agreement there is between the Miſletoe and the Mezereon.

## CHAP. VII.

## Obſervations *and* Experiments *relating to planting of Trees in Clay, Chalk and Gravelly Soils; with ſeveral Improvements for planting of Wall-Trees.*

THERE is nothing which has given a greater Check to the Progreſs of Gardening, than the unartful Proceedings of unexperienc'd Men, or of thoſe who will not give themſelves Time to conſider deliberately what they are about; it is not the bare Knowledge that a Tree has a Root, and that the Root muſt be ſet in the Earth, that will give Succeſs to the Planter's Undertakings; he muſt know how to judge of the Soil and Situation each particular Tree requires, and learn how to aſſiſt either of them without extraordinary Expence. When therefore we meet with Artiſts of this ſort, who have Reaſon for their Guide, we ought to regard them as publick Benefits.

In the diſpoſing of clay Grounds, chalk or gravelly Soils for Gardens, it is not uncommon to ſee ſuch wrong Steps taken in the ordering the Works upon them, as tend to the Deſtruction of the greateſt Part of the Plants to be ſet in them, which ſeems to happen chiefly from the want of due Conſideration in either the Undertakers or Planters.

Where the Surface or the upper Soil is not above three or four Inches thick, and the next Stratum or Layer of Earth is ſtiff Clay, it is a Practice too frequent to dig Trenches for the Beds about fourteen or eighteen Inches deep, to remove the Clay and Earth dug out of them, and fill them again with fine freſh Earth brought from ſome other Place. The Arguments which I have heard for this Method are chiefly theſe; *viz.* that the Surface or firſt Layer of Earth was not deep enough of it ſelf to nouriſh the Trees that might be planted in it, and the ſtiff Clay below it would be very pernicious to Trees of moſt Kinds that were to ſtrike their Roots into it; and to avoid both theſe Evils, the Trenches were cut, and fine Mold fill'd into them. The Objection to this Practice is, that when the Wet begins to fall, theſe Trenches in the Clay receive the Water, and are like ſo many Baſons to hold it, and ſo renders the fine Earth that was put into the Trenches perfect Mud; for a Body of Clay or Chalk will not admit Water to paſs through it; and therefore it is almoſt a Miracle to ſee any Plants live or thrive in ſuch trench'd Beds or Borders, unleſs they are ſuch as naturally live and grow in Water or in Bogs. I have obſerv'd many thouſands of Plants deſtroy'd by planting them in ſuch Trenches of Clay and Chalk; although there were Drains made from them as artfully as poſſible, yet the Wet always corrupts and chills the Earth in them.

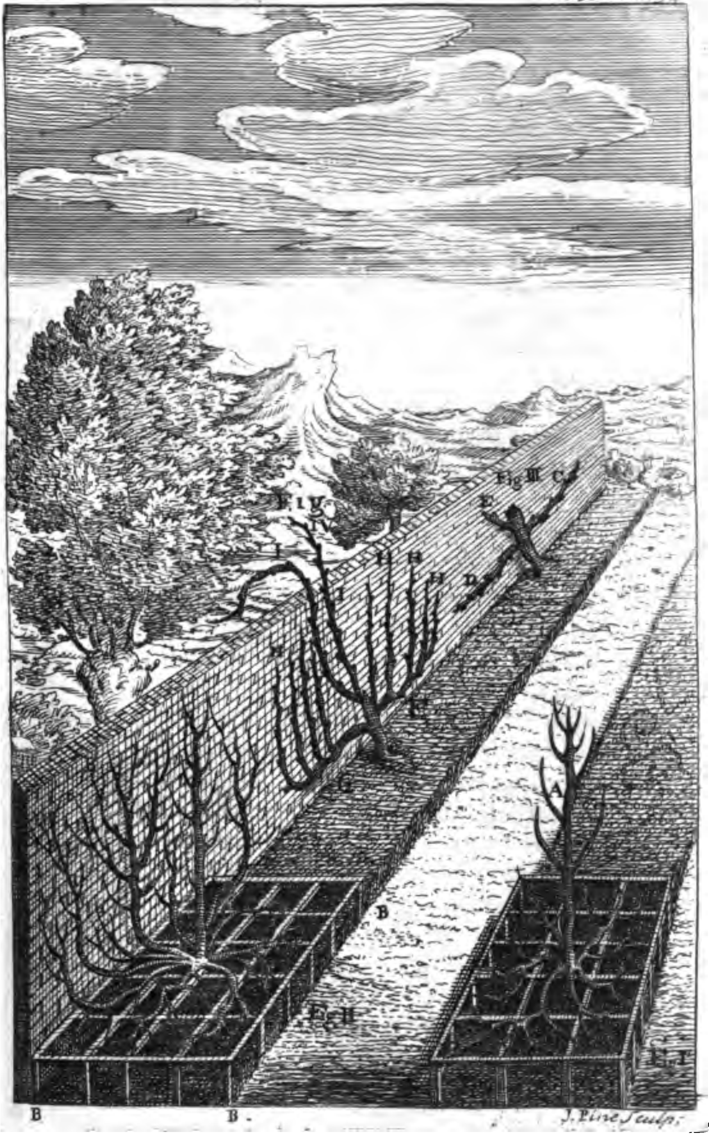
Mr. *Fairchild* well obſerves, that where the firſt Layer of Earth or Soil is ſo thin as in the Caſe I mention, and the next Layer or Stratum is either Gravel, Chalk or Clay, we ſhould never dig into theſe bad Bottoms, but raiſe our good Earth to a due Thickneſs upon them where we deſign to plant our Trees, or elſe to raiſe Hills of good Earth to plant them on; for a Tree ſo planted, will turn its Roots when they come near either the Gravel, Chalk or Clay, and ſpread them in the Surface, though it is not thicker than two or three Inches. And it is obſervable, that when Holes are dug in theſe ſtubborn Soils, and fill'd with good Earth, yet the Trees planted in ſuch Places, when they ſpread their Roots to the Borders of ſuch Holes, ſo as to touch the Gravel, Clay, *&c.* begin to canker, and preſently decay.

I have alſo taken Notice, that the ſureſt Way to manage ſuch Grounds as I have been ſpeaking of, is to pare off all the Surface; and after it has had due Time to mellow, then to lay it in Beds upon the Clay, Gravel, or Chalk, without cutting or trenching ſo much as an Inch deep into any of them; by which Practice I find Plants thrive and grow well, and are out of Danger of decaying before their natural Time. This is one Way to ſecure our Trees from harm, by giving them Liberty of ſeeking and finding out the Nouriſhment proper for them; but if we encompaſs their Roots with Earths oppoſite to their Taſte, they ſtarve themſelves into Diſtempers.

When we are come thus far, I ſhall next conſider how a Fruit-tree may be planted for a Wall, to receive more Advantages than it will do by the common Way of Planting; and for this Thought I am oblig'd to the curious Mr. *Whitmill*, whom I have ſo often mention'd. He obſerves very juſtly, that the common Practice of planting Trees againſt Walls very often occaſions the Trees to decay in few Years, *i. e.* by planting them ſo near to the Wall, that every Part of the Root has not a convenient Space to ſpread it ſelf, that Part next the Wall muſt want Nouriſhment in many Caſes, although the Vine has an Advantage from the Mortar in the Wall, and the Peach loves to ſhoot downright in the Earth; but yet, as I have obſerv'd before, the Root of the Peach will want Moiſture in Summer, and cannot always find a proper Earth below to nouriſh it.

The Method indeed which Mr. *Whitmill* preſcribes, is chiefly deſign'd for ſuch Pears as want the Aſſiſtance of a Wall to ripen their Fruit; but it is my Opinion, that every ſort of Fruit-tree, which is a vigorous Shooter, will agree as well with the Method he directs as the Pear-tree. Firſt of all, he adviſes to prepare a Bed about four Foot wide, under the Influence of a well expos'd Wall, and to plant our Trees about the middle of it, ſo that the Roots may enjoy the Liberty of two Foot Earth on the Wall-ſide, before they can reach it, which will give them Strength of Shoot equally in every Part, and preſerve them in Health better than the common Way of Planting. But to curb this Luxuriance, and bring the Trees to bearing, the Shoots are to be ſpread flat or horizontally, ſo as to make a Covering for the Bed, which perhaps may be near two Foot above the Earth. A few Stakes and common Arbour Poles will direct theſe Shoots, as we may obſerve in Fig. I. which manner, ſo far as I have yet mention'd, may be ſeen at Mr. *Greening*'s at *Brentford*, and has a very good Effect.

As the Trees planted and trained in this Way ſpread themſelves, Mr. *Whitmill* would direct all the Shoots which are within reach of the Wall to be nail'd up to it, which bending will check the Overflux of the Sap, enough to bring the Shoots to a bearing State, if the firſt ſpreading of them upon the Poles did not do it. By this Practice a Wall of eight Foot high will be ſufficient for a Tree that would otherwiſe require one of twelve or ſixteen Foot, and have many other Advantages; as firſt, that the part of the Tree which ſpreads over the Bed, may be ſecured from the Froſt in the Time of its Bloſſom, by covering with a Mat, and bring Fruit, when the Part nail'd to the Wall receives Damage either by Froſt or Blight. Secondly, The Reflection of the Wall will contribute to the ripening of the Fruit upon the flat Part of the Tree. Thirdly, That the Fruit will be well nouriſh'd, becauſe the Roots have the due Liberty of the Earth, and are not too much expos'd to the Sun in hot dry Seaſons: And there is better Opportunity of letting the over-abundant Sap ſpend it ſelf than can be had in Trees planted againſt Walls in the common Way. The Letter A in the firſt Figure ſhews one of the vigorous Shoots, which is left as a waſte Pipe, if there ſhould be occaſion, ſo named and practiſed by Meſs. *Warners*, who with great Pleaſure I had occaſion to mention in the former part of this Work. This waſte Pipe, as I ſhall call it, ſerves to rectify the Sap in the other Parts of the Tree, and bring it into a bearing Condition.



J. Pine sculp.

Fig. II. at BBB B, we may obſerve the Method of training a Fruit-tree againſt a Wall, according to the Method preſcrib'd by Mr. *Whitmill*; and if by this means it is yet too luxuriant, he adviſes the binding ſome of the moſt vigorous Shoots with ſtrong Wire, which he ſuppoſes will check the Sap; and in ſome Caſes he even adviſes the binding cloſe with Wire ſome of the larger Roots. But to curb the Over-growth of Fruit-trees, Meſs. *Warners* cut what they call a wild Worm about the Body of the Trees, or ſcore the Bark quite to the Wood in the manner of a Screw, which muſt be done with a ſharp Knife. Another Practice of theſe Gentlemen, which is no leſs Philoſophical, is the graffing or budding here and there a Cion of good bearing Trees into thoſe which are too wanton in their Growth; which Experiment fully anſwers the Deſign, and brings thoſe Trees which are graffed upon to bear well. But I conceive this would yet be more ſucceſsful, if we were to inoculate or graff the ſtrong Shooters, or leſs bearing ſorts of Trees upon the great Bearers; becauſe thoſe Trees which are apt for bearing, will feed the Cions of the vigorous Shooters only with ſuch Sap as is well digeſted or ripen'd, and will alter their luxuriant Quality at once; whereas the former Method of graffing the good bearing Kinds upon the bad Bearers, requires more Time to render the Tree fruitful; for the luxuriant Quality of a whole Tree working in full Power upon a few Buds or Cions of the good Bearers, they can do little more than reſiſt the fluent Sap for a Seaſon or two, and muſt require Time to inſinuate their prolifick Virtue into the whole Tree they are graffed into. Since the Subject is now before me, I ſhall mention an Obſervation or two which I have made at Mr. *Whitmill*'s, that in ſome degree may be uſeful to our preſent Purpoſe, and confirm ſome Experiments of the late excellent Mr. *Evelin*.

Mr. *Evelin* mentions in ſome of his Works, a Method of graffing Orange-trees; but that Method has had ſo little Weight with the Gardiners, that I have never ſeen it practis'd, till by Accident I found it done at Mr. *Whitmill*'s at *Hoxton*, and even then as he told me, it was partly the Effect of Chance which put him upon it; for while his young Orange Stocks were in his Conſervatory, the Mice bark'd a Couple of them ſo near the Root, that there was neither a Poſſibility of inoculating or inarching them, which gave him an Opportunity to try the Experiment of graffing them in two different Ways, the one in the Bark, the other in the Cleff; the Succeſs was, that both the Graffs took, and it was obſervable, that the Orange-tree graffed in the Bark, ſhot very vigorouſly the ſame Summer; while the other, which was graffed in this Cleff, ſhot with more Moderation, and put out ſeveral Bloſſoms a few Months after graffing, which, I ſuppoſe, might happen from the pinching of the Cleff, and thereby checking the too vigorous Progreſs of the Sap of the Stock; both theſe, however, made very handſome Plants in three or four Months after Graffing.

When he inarches Oranges, he ſo far joins in Opinion with the Gentlemen abovemention'd, that to make them bear ſoon, he always chooſes a flow'ring Branch to inlay into his Stocks, and from thoſe he has Fruit immediately; but on the contrary, he inarches vigorous Shoots in thoſe Stocks which he deſigns to grow large: I confeſs I have not ſeen ſo fine a Collection as he has of ſmall bearing Trees.

At the ſame time he ſhew'd me ſome Myrtles which were inarch'd one upon another, and had taken very well; among theſe we found the large leav'd Kinds upon the ſmall leav'd Kinds, the Nutmeg Myrtle upon the Upright Myrtle, the ſtrip'd upon the plain, and the double Bloſſom upon ſeveral ſorts; which brought to my mind ſome Thoughts I once had, of making a Pyramid of Myrtle, whoſe Baſe ſhould be garniſh'd with the *Spaniſh* broad-leav'd Myrtle, to be follow'd with the Nutmeg, and next to that the ſilver-edged Myrtle, and upon that the upright ſort, to be ſucceeded by the Roſemary and Thyme-leav'd Kinds to the Point, upon which we might have a Ball of the double-bloſſomed Myrtle, which would make a fine Appearance.

While I have an Opportunity of the Copper Plate, deſign'd to explain Mr. *Whitmill's* Method of managing ſome kinds of Fruit-trees againſt Walls, I ſhall take occaſion to mention the *French* Method of treating Wall Vines, which has little Trouble in it, and will give us extraordinary Fruit.

In order to which, we muſt firſt bring our Vines to ſhoot with Vigour, that we may have two or three Shoots of Strength to lay to the Wall for Service; and this depends upon the pruning of the ſmall Shoots: For Example, we will ſuppoſe we have a young Vine planted in the Spring, 1720, which at *Michaelmas* the ſame Year, has ſhot two or three ſmall Twigs about the Thickneſs of Wheat Straws; when theſe Twigs have done their Growth, we muſt cut them down, ſo as to leave only one Bud upon each Shoot; ſo that the Spring following, *Anno* 1721, the Sap, which by Nature was deſign'd to furniſh all the Buds in the Twigs we cut off, will be employ'd only to nouriſh the few ſingle Buds which we left in pruning, and will fling thoſe remaining Buds into vigorous Shoots; which, in the Vine, are thoſe that bring bearing Branches. Theſe Shoots proceeding from the Buds in the Spring 1721, will, at *Michaelmas* the ſame Year, be at their full Growth; and ſhould not be broken or touch'd with a Knife while they are in Growth, for that will ſet them to branch, which ſhould be avoided.

When we are come ſo far as *Michaelmas* 1721, we are next to enquire what Length we may prune the Shoots of that Year to, when we lay them down to the Wall; and that pruning we muſt order according to the Strength of the Shoots: If they are about nine Parts in twelve of an Inch Diameter, they may be left about a Yard and half long; or if about half an Inch Diameter, leave them a Yard; or as they are leſs, muſt be ſhorten'd in proportion. It is a Maxim that where we find the Joints ſhort in Shoots of Vines that are of good Subſtance, we may leave them all upon ſuch Shoots.

The III^d Figure ſhews us a Vine pruned at *Michaelmas* 1721, which had three vigorous Shoots. C is one of them laid down horizontally to run parallel with the Border. D. is the ſecond Shoot above it, prun'd and laid to the Wall in the ſame manner. And we are to obſerve the Shoots C and D are to produce bearing Branches, *Anno* 1722. E is the third Shoot prun'd to two or three Buds, which are left to furniſh Shoots for laying to the Wall at *Michaelmas* 1722. when the Shoots C, D, are to be quite taken from the Vine, unleſs a Bud or two, to ſupply the following Year ſome Shoots for laying down.

Fig. 4. gives us the Appearance of the ſame Plant at Fig. 3. in its full Growth; and the manner in which the Shoots, or bearing Branches proceeding from thoſe laid down *Anno* 1721, ought to be nail'd to the Wall 1722.

F. in Fig. 4. is the ſame Shoot as C. in Fig. 3. and G. Fig. 4. is the ſame as D. in Fig. 3. The Letters HHHH ſhew the Shoots proceeding from them in 1722, and thoſe Shoots mark'd II. point thoſe ſtrong Shoots, which ſhould be preſerv'd to ſucceed the Shoots F. G. when the Grapes are ripe; for then, as I have obſerv'd before, F. G. muſt be taken away.

CHAP.

## CHAP. VIII.

### *An Account of a new Method of Tranſplanting Trees of any Bigneſs with Safety, either while they are in Bloſſom, or with Fruit upon them; ſo that Gentlemen who come late to their Eſtates, may, in a few Days, furniſh the Walls of their Gardens with Trees full of Fruit, or plant Wilderneſſes or Avenues that ſhall afford them an immediate Shade, and grow with as much Vigour as if they had not been tranſplanted.*

IT has been a general Complaint, that Plantations of all Sorts are ſo tedious in their Growth, that under five or ſix Years one can hardly expect our Garden Walls, or other Garden Plantations, to yield us a Quantity of Fruit ſufficient to anſwer our Expectations, or reward our Labours: Or would we deſire Shade, we muſt wait ſtill much longer for it; and there has been no Redreſs for either of theſe Grievances. I have known many noble Perſonages, as well as others, that have lamented the Want of the Secret to ſupplant Time, and call it back, or have wiſh'd themſelves twenty Years younger, to begin Plantations to their Mind, or that they might live to reap the Fruits of their own Labours. After this Manner have many of my Acquaintance unfolded their Minds to me, and I have as often taken Part with them in their Uneaſineſs upon this Occaſion; for I was well aſſured, that upon the Foot of common Practice in Planting and Gardening, there could be no Redreſs for them.

The firſt Thoughts that I had to help them out of this Difficulty, related only to Fruit Trees; for which End I contrived the raiſing of Fruits of all Kinds, in Caſes or Boxes, that might take to pieces at Pleaſure, ſo that theſe Trees might be remov'd with all the Earth about them, from one Place to another, with Safety: And alſo that ſuch Trees, while they were growing in the Nurſery in their Caſes, ſhould be trained in Eſpalier, ſo that at their Removal they ſhould fit a Wall at once without Difficulty. This I have fully explain'd in ſome of my former Works, and is now in Practice; but then this does not extend further than the propagating of Wall Trees.

The next Knowledge that I gain'd towards the Point in hand, was from Mr. Secretary *Johnſtoun* at *Twittenham*, where I ſaw the Advantage of tranſplanting Trees of all Sorts in Summer: It was a Diſcovery of that Gentleman's, and practiſed by his Directions with wonderful Succeſs, inſomuch that ſome Lime-Hedges about ten Foot high were remov'd in *May*, *June* and *July*, and they gave very little Token of Removal; large Pear-Trees and Apple-Trees were remov'd, and grew in great Proſperity, and eſpecially ſome *Scotch* Fir-Trees were tranſplanted out of a Nurſery, the ſame warm Summer, and had ſhot above a Foot before the others remaining in the Nurſery began to ſtir or move in their Shoot. There was one Thing remarkable in theſe Tranſplantings, that the Fir-Trees had their Heads remaining upon them, which contributed to their better Growth; and it is the common Opinion that Trees of this Kind cannot be tranſplanted when they are of any tolerable Bigneſs, tho' theſe were near thirty Foot high.

The Elm-Hedges were forced to be cut or pruned when they were tranſplanted, to put them into Form; and the Orchard-Trees were lop'd, for the better Convenience of Carriage; however they brought good Fruit the next Year, and, I ſuppoſe, would have much more, if all their Branches, or the moſt part of them, had remain'd upon them.

The Method of tranſplanting theſe Trees, was by preparing Holes for them before they began to be taken up, and the Earth taken out of thoſe Holes was made very fine, and mix'd with Water in large Tubs, to the Conſiſtence of thin *Batter*, with which each Hole was filled, for the Tree to be planted in, before the earthy Parts had Time to ſettle or fall to the Bottom. A Tree thus planted in *Pap*, has its Roots immediately encloſ'd, and guarded from the Air, and as the Seaſon then diſpoſes every Part of the Tree for Growth and Shooting, we find that it loſes very little of its Vigour, if we have been careful of its Roots, to wound few of them at the taking it out of the Ground, or have not let them grow dry in the Paſſage from one Place to another.

The great Succeſs which attended this manner of Planting, ſoon gain'd Credit enough to invite many to follow the Example; but as it had been an old Cuſtom to plant in Winter rather than in Summer, it was thought neceſſary by ſome People to join that old Cuſtom to the new Invention of the Pap, and ſo all was fruſtrated; it would have been neceſſary to have thought the Tree was not in the ſame growing State in Winter that it is in Summer, and that when neither the Draught of the Tree, nor the Temper of the Air, can draw away the extraordinary Wet from the Root which is contain'd in the Pap, then that the Pap about the Root ſerves only to chill and rot it; when on the other hand, in the Summer, all Trees are fill'd with fluent Sap, and their chief Refreſhment is Water, which neither their own powerful Spirit of Growth, nor the Warmth of the Air, will ſuffer to remain too long about them. It is a Seaſon when all Plants of the ſmaller Kinds, which are carefully remov'd, will ſtrike Root in a Day or two, and I ſee no Reaſon why large Trees will not do the ſame in a few Days at that time of the Year; but in the Winter Months the Roots will not renew themſelves; therefore it is not neceſſary to tranſplant Trees in that dead Seaſon, if it can be avoided, eſpecially in Places abounding with Water; or to fill their Holes at that time with *Pap*, which, for want of Warmth and vigorous Life in the Trees, muſt ſtagnate, and corrupt, and injure the Root.

Theſe Conſiderations, upon what I had obſerv'd at Mr. *Johnſtoun*'s, led me further to think of ſome Obſervations I had made in my own Garden, relating to the ſupporting and invigorating an old Tree, by transfuſing of young Sap into it, and how far that Experiment demonſtrates the Circulation of Sap, which is ſo neceſſary to be conſidered in pruning, planting and the ordering of Trees. This Experiment, I ſay, plainly ſhew'd me, that there was as regular a Circulation of Juices as there is in animal Bodies; and then, where ſuch a Circulation is, it is as ſure that it muſt be through Veſſels which have an immediate Correſpondence with one another; and then it is as neceſſary to preſerve theſe Veſſels entire, as it is to preſerve the Veſſels in an animal Body entire, to help that Circulation. From whence I concluded, that at the time of tranſplanting a Tree, it was by no Means proper to cut off any of the Branches, or wound any of the Veſſels, if poſſible, that the Sap might circulate more freely, and the Tree might remain in better Spirit, till it had renew'd its Roots, which of Neceſſity muſt be wounded at tranſplanting.

Now, as the cutting and wounding of ſome Roots of a Tree, and even among them ſome of the Capital ones, cannot be avoided, I thought it convenient to contrive a Mixture of Gums, to plaiſter over the wounded Parts of the great Roots, and prevent the Air and Wet penetrating too much into the Veſſels of the Roots, and at the ſame time, if the Root was very large, to mark its correſponding Limb or Branch in the Head, to be cut off when we ſee it begin to grow, and to be then plaiſter'd in the ſame manner as the Root was done before.

I find this Plaiſtering of the wounded Parts of a Tree to be of great Uſe for bringing large and vigorous Shoots, and preſerving the Tree from Canker or the Rot, which will attack it by little and little, if the Mixture of Gums is not applied as ſoon as any Limb or Branch is cut off.

Nor muſt we have leſs Care to be ſudden in the Removal of our Tree from one Place to another, for if the Roots grow the leaſt dry, we may preſently diſcern a Failure in the Top Branches which correſpond with them, and that will require Time to redreſs; the more they fail, the longer Time they require for their Recovery. And for this Reaſon it has been thought impoſſible to remove a large Tree to any conſiderable Diſtance, though now I am ſatisfied of the contrary, having by Accident met with a Preparation, with which, if we anoint the Roots of a very large Tree, we may let it lye out of the Ground one Day in the hotteſt Summer, and it will not drop or flag a Leaf; common Soap will do for two or three ſorts of Trees; but I find it is not agreeable to all, being ſubject to canker the Roots of many.

In this Way of Planting there is one Convenience which is not in the common Way, and that is, that here we are not to take any Earth about the Roots, which will make their Tranſportation more eaſy. The ſmall ones, ſuch as Currans, Gooſberries, and ſuch like, together with all the flowering Shrubs, when their principal Roots, which happen to be cut, are dreſs'd with the Mixture of Gums, which muſt be done while the Tree is taking up; theſe muſt have their Roots immediately plung'd into a Veſſel of Water, and fine Earth mixt like Mud, in order to convey them freſh to the Place where they are to be planted, and then filling the Hole with Water and fine Earth well ſtirr'd together, plant your Trees in that Pap, and continue adding more Earth and Water, till the Holes are fill'd. We muſt then fix our Plants very well with Stakes, eſpecially if they are tall or large Trees, and as the Pap begins to harden, it muſt be carefully watch'd, to prevent cracking, which it will ſurely do, if the Top of it is not ſtirr'd or broken a little with a Spade, and a little freſh Water and Earth pour'd over the whole, and then cover'd with Fern, or ſuch like; but green Turf is much the beſt.

I have for ſeveral Years paſt made the Experiment upon Gooſberries and Currans in the manner I mention, in the Months *May*, *June*, *July* and *Auguſt*, and they never fail'd to ripen, and carry their Fruit very well the ſame Year, and grow vigorouſly. Again, one Good which attends this Way of Planting is, that Plantations of this Kind do not require any Waterings after they are once ſettled, for they preſently renew their Roots, which thoſe Trees planted, about the Winter Months, will do but indifferently the firſt Year, and ſometimes not at all.

To remove ſmall Plants from Place to Place, we may put their Roots in Bladders of Water, or of Earth and Water, and carry them two or three Days Journey with Safety; but if the Journey be long, I rather chuſe Earth and Water finely mix'd, than ſimple Water; and a Bladder may be tied cloſe to the Stem of the

Plants, without being in Danger of breaking, as a Vial would do.

By this Method, and the Aſſiſtance of the prepared Gums, and a viſcous Preparation, I have remov'd Peach-trees, Nectarines, Pear-trees, Plum-trees, and Cherry-trees, with Fruit upon them, both green and ripe, ſome of which Trees had been train'd againſt Walls upwards of ſix Years; and though ſome of them were carried above fifteen Miles, they grew perfectly well, and preſerv'd their Fruit; ſo that by this Means any Gentleman that had a Mind to furniſh the Walls of his Garden, might chuſe his Fruit-trees with the Fruit upon them, and have them remov'd to his own Garden at a Minute's warning; and beſides the Satisfaction of knowing every Tree brought Fruit to his liking, he would have the Pleaſure to have gain'd ſix or ſeven Years of time in one Day; but it muſt be conſider'd that ſuch Trees will demand a good Price, for whoever parts with them, may at that Inſtant, in point of Plantations, be reckon'd to have loſt ſix Years of his Life, or to be ſix Years older than he was before.

By this Method of tranſplanting Trees, there is yet one Advantage, that if a Gentleman has planted a fine Collection of Fruit in his Gardens, and ſome Accident may happen whereby he is oblig'd to quit his Garden on a ſudden, his Fruit-trees may be remov'd with Safety from *May* to *Auguſt*, and he will loſe no Time.

This Year, in *April*, I remov'd an old Standard Plum-tree, near forty Years old, at *Moleſey*, when it was full in Bloſſom, and though the three principal Roots were cut off each as thick as a Man's Wriſt, and a proportionable Number of Boughs which correſponded with

them,

them, it is now growing, and has ſeveral Fruit upon it; but the Method of moving a Tree in this State to a little Diſtance, is very different to the moving a Tree with Fruit upon it.

In the doing of this Work, a Gardener muſt firſt be very cautious in applying the Mixture of Gums, and that he does not uſe that kind of Mixture which is made for Kernel or Pepin Fruit, to a Stone Fruit-tree, or the contrary.

*Secondly*, He muſt take care to plaiſter the wounded Parts of the great Roots as ſoon as each of them is clear of the Earth, and if the Trees are to be carried to any great Diſtance, to anoint their Roots as ſoon as poſſible with the viſcous Preparation, for in hot Weather they will dry in a Minute.

*Thirdly*, If the Soil they are to be planted in be a Clay, we are not to make the Holes for the Trees in the Clay; for though we make them twenty Foot wide, and were to fill them with the beſt ſifted Earth with Water, the Tree will decline in the Winter, though it will not fail when we plant it in the Summer. In the Letter concerning Mr. *Potter*'s Ranuncula's, we may ſee the Reaſon.

With the like Succeſs have I tranſplanted two or three Elms about thirty Foot high, ſo that there has been no Appearance of their Removal; their Leaves have remain'd green and bright, and are now proſperous; their Heads are full, and they afford as much Shade ſince their Removal as they did before; and by the ſame Rule I am ſatisfied, that there is not a Tree in *England* which is ſound, and is not of more Weight than can be tranſported from Place to Place, but might be tranſplanted with the ſame Safety as one might plant a Cabbage Plant; but there

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nuſt be due Time allow'd to do it in, and
anter muſt be very careful in uſing his
es and Preparations, and the Labourers
ful in opening the Roots; ſo that in a
ys Time, if there was a ſufficient Allow-
f Men and Money, a Houſe might be
aſs'd with a full grown Wood, and a
compleatly planted with bearing Trees
y ſort of Fruit.

### *ning a new Method of bringing Pear es to bear Fruit, communicated by* Heron, *&c. and of producing a e which ſhall bear Fruit that ſhall be maphrodite.*

*R*,

ve peruſed the greateſt Part of what
have written about Gardening with a
al of Pleaſure; and I muſt ſay, ſuch as
y Curioſity, owe very much to you, for
ou have publiſh'd upon that Account.
nowing Part of the World, who value
ves upon Subjects of that Nature, can-
in Juſtice have you in great Eſteem, and
ſpecially where they have the Advantage
r Converſation.

re is a Piece of Amuſement which I have
my Houſe ſeveral Years, which any Gen-
who has the Convenience of Water
Gates, or running through his Gardens,
t up to his Pleaſure and Uſe. It is a
hat goes by Water, being a perpetual
, in regard it needs no winding up: I
own it go a Month together without
loſing

loſing time, the Water when once truly regulated being very exact. I have ſent you herein encloſed the Model of it.

I muſt acquaint you likewiſe of a ſmall Piece of Improvement, that I find hath not been put in Practice by any but my ſelf, which is Dwarf Trees trained circular Ways, after the manner of a Screw, whereby I make a Tree forty Foot long, not to be five Foot high: The Tree is carried round upon a Frame of ſmall Poles, made into a Bell Figure, and as it advances in Growth, is tied gently to the Frame by Pieces of woollen Yarn, raiſing it a little as it winds about, and therefore needs no Pruning. This Way of training them conſumes the Sap, and makes them very productive; and when the Frame decays, the Tree keeps its Station, and looks very well. If any Shoots offer to ſpring up in the Summer from any of the ſide Branches, they muſt be pinched from the firſt beginning, and when a froſty Night threatens them in the Spring, make a plain Frame upon a large Hoop, cover'd over with a Piece of Canvas, or pitch Cloth, to cover the whole, which preſerves the flouriſhing Buds, and their knitting till the Danger be over, and keeps them alſo from cold Rains and Winds in the Spring.

I have likewiſe haſtened the ripening of Fruit by a Fortnight, by taking off the Earth from about the Trees near to the Roots, after the Fruit is grown to a Size of Bigneſs as much as you expect they will come to, and in dry Weather giving them a little watering in the Morning; this Way hath a good Effect upon Vines and early Cherries, or Plums, or the avant Peach. I had Fruit upon Trees uſed after this manner, two Weeks, or at leaſt ten Days, before others of their Kind that was not ſo prepar'd. Sir, I hope you will pardon my Freedom in communicating what I thought was not yet in univerſal Practice, being with all due Reſpect,

*Sir,*

*Your very humble Servant,*

A. HERON.

*P. S.* The Water Wheel of the Clock is about eighteen Inches Diameter, and of the ſame Form as the Wheel of any ordinary Corn-Mill; its Axletree on the ſide the Standard is near a Foot long, with a Screw on the End of it, that when it turns, takes in the Teeth of the Foot Wheel, which conſiſts of twelve Teeth: The Axletree hath a Pinion beyond the Screw, where it turns in a ſmall piece of Wood ſet up for the Purpoſe: The Standard is five Foot high, with a Gutter cut in two Inches deep, and as much broad, in which turns the Shank of the Foot Wheel, to which it is fixed with a Pinion below the Wheel to move upon, in a little Frame of Iron, as the Pinion it ſelf is to keep it ſteady in its Motion. There is a Box fixed on the Top of this great Standard, ten Inches Diameter, with a Hole cut out in the Bottom, to let the Shank or Standard of the Foot Wheel go up thorough, and hath a Screw upon the Top of it, with a Pinion in a Frame upon the Top of the Box. This Screw turns a Wheel of ſixty Nicks within the Box, and the Axletree of this great Wheel hath a Screw upon it, that turns another Wheel of twenty four Nicks, the

End whereof goes thorough, and hath a Pointer fixed upon it without the Hour Plate, like a common Clock. Where you bring of your Water, you cut a ſquare Hole in a Piece of Board, with a Shutter upon it, whereby you give more or leſs Water, till you bring it to one exact Time. The great Standard muſt be cut thorough half Way, where the Foot Wheel is to ſtand, about four Inches wide.

This Letter I have receiv'd from Mr. *Heron*, contains ſo much good Matter in it, that there is large room for Reaſoning. It is the Opinion of our greateſt Gardiners, who have ſtudied philoſophically of the Matter, that whatever contributes to check the Sap, does at the ſame time bring Fruit upon a Tree, or bring a Tree to bearing much better than by wounding or cutting it. Some Sorts of Pears are given to ſhoot with too much Vigour, and run to a very great Height before they come to bearing, and then their Shoots require a greater Length of time to be brought to bloſſom, than ſuch Trees as are leſs vigorous in their Shoot; and both theſe ſhould be warily conſider'd by the Gardiner, and not let him cut off every large Shoot, becauſe they will not bear at once, for ſome will not bring Fruit till the third Year, tho' ſome bear upon the two Years, and others even upon one Years Wood. The want of this Knowledge has very likely been the Reaſon why ſome of our beſt Pruners have not always had ſo good Succeſs as one would wiſh. But to prevent Miſtakes which might ſometimes happen in Pruning, I ſee no ſurer Way than to follow the Method preſcrib'd by Mr. *Heron*, for by twining the Shoots of the Pear-trees about a Frame of Poles, the Sap is ſo much curb'd, that the Tree may be brought to bearing ſooner than if it was to run at Length; and beſides, a Tree ſo order'd, will take up much leſs Room than if it was to be manag'd in any of the common Ways, and there is no Danger of cutting off any of the bearing Wood; and ſtill there is one more Advantage, that ſuch Trees may be defended without much Expence from Dangers while they are in Bloſſom. I think one may add upon this Occaſion, that when the Tree has gained the Top of the Poles, we may cut off one of the ſtrong leading Branches near the Root, in order to have new Shoots to be carried about the Frame of Poles, to ſucceed the old, and ſo have a continued Succeſſion of Bearers.

Nor is Mr. *Heron*'s Method of bringing Fruit to ripen early, leſs reaſonable and beneficial in the colder Climates, for a Fortnight gained about *Galloway* in *North Britain*, I ſuppoſe, puts that Climate nearly upon the ſame Foot of our *London* Climate, and the ſame Method us'd about *London*, may make ſome of our late Fruits ripen as in a *Paris* Climate.

*SIR*,

BEing an Admirer and conſtant Reader of thoſe Curioſities you have oblig'd the World with in your monthly Obſervations publiſh'd the laſt Year, I thought I could do no leſs than acquaint you with a Curioſity in an Orchard of my own: We have an Apple in this Country call'd a Rawling, of which there is a ſweet and a ſour; the ſour when ripe, (which is very early) is a very fair large Fruit, and of a pleaſant Taſte, inclin'd to a golden Colour, full of narrow red Streaks: The ſweet Rawling has the ſame Colours, but not quite ſo large, and if boil'd grows hard, whereas the ſour becomes ſoft. Now what I have to inform you of is, *viz.* I have a Tree which bears both ſorts in one Apple; one ſide of the Apple is altogether ſweet, the other ſide ſour, one ſide bigger than the other; and when boil'd the one ſide is ſoft, the other hard, as all ſweet and ſour Apples are. What I would be inform'd from hence, is your Judgment with reſpect to the propagating of two different ſorts of Fruit in one Apple. I aſſure you this is Fact, without any Equivocation, and deſire you will be pleas'd to let me know your Thoughts of it.

*I am your very humble Servant,*

R. Beavis.

In anſwer to this Letter, I muſt firſt ſay, that I have been told of the ſame thing often when I was in *Devonſhire*, and have had ſome time to conſider of it. I think there may be two Ways of producing the Effect: The firſt, which ſeems moſt natural, may be by the Farina of one Plant entring and impregnating the Bloſſom or Fruit of another, and thereby making a Seed partake both of the male and female Parent; which, according to my Obſervations on the Generation of Plants, is to me the Reaſon. In theſe monthly Papers, I have mention'd the party-colour'd Grape, the hermaphrodite Orange or Lemon, which are yet more curious in this Way; and I might add the Lime Pregnans, in which Fruit an Orange is encloſ'd in the Belly or Pulp of the Lemon-fruit, as we are inform'd from good Hands. But if this is not the Caſe, then I ſhould imagne that it may be done by graffing or inarching, as in the third Figure; that is, by chuſing two Trees of different ſorts, and taking off the Bark on one ſide from each of them, ſo that their Woods may be ſet flat to one another, and bound gently together; it may be perhaps they may unite, and by means of their different Intents, may ſcatter their different Qualities over the whole Tree, which may appear more or leſs in the ſeveral Fruits produc'd by that Tree: If this ſort of Inarching ſhould take, one of the Trees ſhould be cut from the other as ſoon as it has taken. 'Tis however a very great Curioſity, and I ſhould be glad to be certain of the Method uſed to bring it about, as it would very much improve both Huſbandry and Gardening.

## *To Mr.* Richard Bradley, *concerning the Management of Fruit Trees.*

*SIR*,

I Have here ſent you, according to your deſire, my Thoughts concerning the Management of Fruit-trees; and I ſhall begin with the building the Walls. I cannot fall in with the Advice which ſome People give for building them on Arches, becauſe of theſe following Objections. Firſt, If it be a party Wall in the Garden, and is planted on both Sides, the Trees will run through and rob one another of their Nouriſhment. Secondly, If it be an outſide Wall, there are commonly Elms at ſome ſmall diſtance planted to break the Violence of the Winds, whoſe Roots will the eaſier run through and rob the Fruit-trees of their Nouriſhment; but if there be not, it is but ſeldom that we have as good Earth without-ſide the Garden as within; and laſtly, the worſt Inconvenience is, it is an Enticement for the Roots of the Trees to run downright, which is a very great Fault in Fruit-trees; beſides, the Roots can find but little Nouriſhment under a Brick Wall, where neither Sun nor Showers can come to give the Earth a true bearing Quality. I have ſeen a Book in Quarto, written by a Fellow of the Royal Society, who has taken ſome Pains, in a Mathematical Way, to further the Improvement of Fruit, by building Walls ſloping, and has given ſome great Proofs in his Way, of the Advantages attending ſuch a Wall; but I am ſure he never made any practical Experiments in this Way, for had he ſo done, he would have been of another Opinion. I think a perpendicular Wall preferable to any other, or rather hanging a little inward over the Fruit, if it could be conveniently contrived; for when the Sun is low, either in Spring or Autumn, or in the Morning or Evening, then the ſlope Walls which lean backwards, have but a Glance of the Sun's Power; whereas a perpendicular Wall has its full Rays againſt it, which is preferable to the greateſt Heats of the Sun at *Midſummer* upon one of theſe back-ſloped Walls, for it is the Sun in Autumn we want to ripen our Winter Pears, which require to be kept dry; but againſt theſe ſloping Walls they cannot, the Dews lying much longer than on the perpendicular Walls; beſides, they are much more liable to Blights in the Spring from the white hoary Froſts, and are more expoſed to the eddy Winds on all Sides.

What the ingenious Mr. *Laurence* has ſaid concerning the horizontal Shelters for the Safeguard of the bloſſoming Trees, I approve of, and have experienced to be good; but I cannot help thinking that the Tiles he mentions will harbour Vermin; and beſides, it is difficult to lead a Tree rightly among them; 'tis therefore I practiſe another Method to ſave my bloſſoming Trees from Froſt and cold Dews, which is, to have a couple of Leaves of Deal cloſely joined together, and well painted, and fix Brackets on the Top of the Wall, and have the Deals to take up and down, putting them up in the Spring, when the Trees begin to bloſſom. Theſe Boards keep off the Rain, Dews and Morning Froſts, and by that means I have ſeen great Crops of Fruit when there has been hardly any elſewhere: And as to the Height of the Walls, I would not adviſe them to be above eight or nine Foot at moſt for Pears; although it is the Opinion of moſt Gardiners, that unleſs the Wall be twelve Foot high, it is not fit for a Pear; then they plant their Trees ſo much the nearer, and run the Branches perpendicular, which is a very great Fault. Firſt, in planting the Trees ſo near, they have not room for their Roots to run, which if they were planted twelve or fourteen Foot diſtant from one another, they would have the ſame room for the Roots to run as the Branches; and the Branches being carried horizontally, fill the Wall at Bottom firſt, and ſo gradually upwards, till the whole Wall will be well fill'd with bearing Wood. And next, concerning the Diſpoſition of Pears, I would adviſe all Winter Pears to be planted againſt the beſt *South* Walls; I have ſeen in ſome Gardens the beſt Winter Pears planted againſt *Weſt* Walls, which I think is a great Fault; as for Summer Pears, and ſome Autumn Pears in Eſpaliers, where I have had them, they do very well; and for the preparing the Soil, it has been my practice to make uſe of freſh Earth from a good Paſture Land, and not to mix Dung and Earth together, and I have found the Succeſs wonderful. Again, I never make my Borders above two Foot deep, but if the Soil be deep or wet, I lay a good Quantity of Rubbiſh to keep the Roots from running downright; and beſides, the Rubbiſh helps to drain the Soil if it be naturally too wet, and keeps the Roots dry, which is a great Advantage to a Fruit-tree. We muſt alſo obſerve that the Roots be well expos'd to the Sun and Showers, which is as neceſſary a Care, as to ſee that the Branches be well expos'd to the Heat. As for the Pruning the ſeveral ſorts of Pears, I ſhall not trouble my ſelf nor you with it, you having already given a very good Account: But in the general, I would adviſe the Pruning to be according to the Strength of the Tree, and to be ſure not to prune too ſhort, which cauſes the Buds that otherwiſe would produce Fruit, to ſhoot all in Wood. What you find here worth tranſcribing, if you pleaſe to give your ſelf the Trouble, will much oblige

*Yours*,

PHILIP MILLER.

By Mr. *Miller*'s Letter, we may obſerve how much he ſtudies the reaſonable Way to manage Fruits. I am perſuaded, did every one, who by Education is appointed to follow the Study of

Gardening, take as much Care to think in a natural Way as Mr. *Miller*, we might in a ſhort Time come to ſuch Knowledge as might extreamly improve Gardening; and conſidering the great Satisfaction which reigns in the Breaſt of every one, who is either the Inventor or Promoter of good Deſigns, I am ſurprized that we have not more People ſtrive to gain that Happineſs; for whoever excells in the Art he profeſſes, has the ſame Right of Honour due to him as a General of an Army deſerves, when he has made a Conqueſt over his moſt powerful Enemies; and why Husbandry and Gardening, the moſt antient Studies, ſhould be cultivated without this Ambition, I know but one Thing which looks like a Reaſon, and that is, becauſe when we have taken a little wholeſom Exerciſe in the propagating of what we deſign for Perfection, we may give up our ſelves to Quiet, till the natural Intent of the Subjects we propagate, bring them forward to our Purpoſe: This for ought I know, may make many of our Practitioners in Gardening, indolent and careleſs of Improvement; but ſhould they once be brought to conſider, that there are ſome few who aim at Improvement, and will be beforehand with them in the Market, if they do not uſe Diligence in their Studies, I am perſuaded it will be Motive enough to forward their Induſtry, and put them upon making new Experiments, and producing ſomething new and good; and though ſome of the Tryals we go upon may not perhaps ſucceed according to our Wiſhes, yet, as I have often ſaid, we are led by thoſe very Diſappointments to a Knowledge of Things, which otherwiſe would have never enter'd our Thoughts, and ſometimes more advantagious, than if we had diſcover'd the Thing we ſought after; but if one in twenty ſhould only prove profitable, it may well enough pay the Labour and Expence of the reſt.

The Experiments which may be made for the Improvement of Gardening and Husbandry, need not be very expenſive, for there is nothing that I know of in thoſe Ways, but may be better try'd in little than in a great Compaſs; let us try in ſmall, and we have more Opportunity of looking after our Experiment, and making our Obſervations upon it, than when a whole Field or large Garden is concern'd; and I think whenever we ſet about ſuch Deſigns, it would not be amiſs to keep a daily Account in Writing, of every Alteration which might happen in the Tryal we were upon; for where an Experiment depends upon Length of Time, we cannot ſufficiently truſt our Memory. I have known a Thing ſucceed well once, that in many Tryals afterwards could not be brought about, only for want of a juſt Regiſter of little Accidents and Changes which happen'd during the Courſe of its Work: The Inconſtancy of Seaſon, Variety of Weather, Difference of Soil or Climate, muſt all be conſider'd, and the Nature of the Plant eſpecially.

CHAP.

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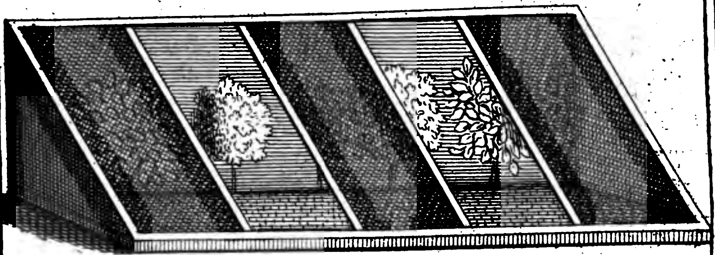


Fig. 1.

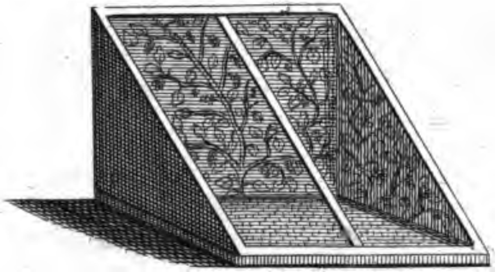
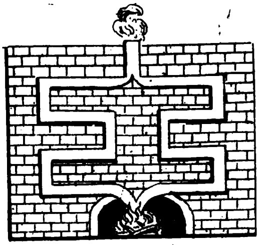


Fig. 2.



## CHAP. IX.

### *Of forcing Fruit; or the Method of making and ordering ſuch a Garden, as will bring Fruits and Herbs for Table-uſe in uncommon Seaſons,* Anno 1722.

I Have been now about a Twelvemonth collecting ſuch Examples in the Way of forwarding and retarding the Ripening of Fruits, as may give them to us in thoſe Seaſons when Nature is unactive among Vegetables, or does not of her own accord produce any Fruit; I mean, the Months of *November*, *December*, *January*, *February*, *March*, and *April*. Theſe Months are ſtiled in *England*, the Dead Months, becauſe there is then no Fruit naturally growing upon the Ground, though in Countries nearer the Equinoctial, there are ſeveral excellent Fruits ripe in theſe Months, without any Art; ſo much Influence has the Sun then in the Southern Parts, that they rejoice in their natural Fruits when our Gardens are vacant, unleſs by the Help of Art.

The Methods which have been taken with us to ripen ſome few Fruits out of their natural Seaſon, have been various, and but few of them ſucceſsful; but however the Artiſts have fail'd of the Perfection they aim'd at; yet, if they have had any Fruit at all, it has, for its bare Appearance ſake, in an uncommon Seaſon, ſo much recreated the Minds of the Curious, that it has been enough eſteem'd, to bring good Profit to the Gardiner that rais'd it.

Mr. *John Millet*, whom I have ſo often mention'd on account of ripe Cherries in *February*, was the chief, if not the only Gardiner in *England*, for bringing his Fruit out of Seaſon to good Ripeneſs and Perfection. I have eaten in *February*, Duke Cherries ſo ripe, that they were almoſt black, and, in my Opinion, were as well taſted as any of the Summer Growth, which depended upon his juſt Management of them, in applying a due Heat at proper Times; but where that has not been rightly underſtood, and the Fruit has been forc'd unnaturally, or with too great Violence, it prov'd always inſipid.

Some Perſons of Diſtinction have, for theſe Reaſons, advis'd me to publiſh my Thoughts concerning the Means which ſhould be us'd to give them good Fruits at uncommon Seaſons; and, particularly, one curious Gentleman, who deſigns to make a Garden on Purpoſe for ſuch Curioſities; and this I hope to preſcribe in ſuch a Method, as will not be very expenſive.

The ſorts of Fruit which I ſhall propoſe are, CHERRIES of the early Sorts, which bear well, *viz.*

The *May* Cherry.
The *May* Duke-Cherry.

### ABRICOTS are:

The Maſculine Abricot.
The *Bruxelles* Abricot.

### PEACHES are:

The Avant-Peach.
The *Anne*-Peach.
The early *Newington* Peach.
The *Albemarle* Peach.
The Brown Nutmeg.

### NECTARINES are:

The early Nutmeg Nectarine.
The Alrouge Nectarine.
And the *Newington* Nectarine.

### CURRANS are:

The large *Dutch* White.
The large *Dutch* Red.

### GOOSBERRIES are:

The *Dutch* White.
The *Dutch* early Green Goosberry.
The Walnut Goosberry.

To theſe Fruits we may likewiſe add two or three ſorts of Grapes, as

The white and black Sweet-water.
The large *July* Grapes, whoſe Berries are equal on the Bunches.

The Malmſey.
The Royal Muſcadine.
The red Raiſin, and
The white Frontenaic, of the right large ſort, which are but in a few Gardens in *England.*

For theſe two laſt, tho' they are late Grapes, will triumph over all the other ſorts, and be early enough, by means of the Force I ſhall preſcribe for them.

All theſe may be planted againſt a Paling of five Foot high, made after the following manner.

The Stakes to ſupport this Paling, muſt be ſet about ſix Foot diſtance from one another; to which we are to nail whole Deal Boards of twelve Foot long, well jointed to one another, and plowed on the Edges, ſo as to let in Lathes, that thereby the Steam of the Dung, which is to lie at the back, may not get among the Plants, for where ſuch Steam comes it cauſes a Mildew.

The Deals if they are not quite an Inch thick, will be apt to ſcorch the Trees upon the firſt Application of the hot Dung, or if they are much thicker, the artificial Heat applied to their Backs upon the Time it begins to decline, will not be powerful enough to warm them thorough, and then the Dung muſt be oftner refreſh'd.

Thus a Paling of ſixty Foot long, will anſwer to five Deals in length, and if it be ſomewhat above five Foot high, will take up in all thirty Deals.

When this is up, we may mark out a Border on the South-ſide of it, about three or four Foot wide; and on the outſide of the Border, we muſt faſten to the Ground, in a ſtreight Line, ſome Scantlins of Wood of about four Inches thick, to reſt the glaſs Lights upon, which are to ſlope back to the Paling, for ſheltering the Fruit, as Occaſion requires; between theſe glaſs Lights muſt be Bars cut out of whole Deal, about four Inches wide, ſo made, that the glaſs Lights may reſt in them: Theſe Bars muſt always remain fix'd, as in a Frame for a hot Bed; but the Figure will explain the manner of this Frame more eaſily to us.

If we had a mind that the glaſs Lights ſhould not ſlope ſo much as they muſt by this Fall from the Upright, we may have a Line of whole Deals on the Top of the Paling, to project their whole Breadth over the Trees, and ſo to let the Tops of the glaſs Lights fall in an Inch or two under them.

At each End of this Frame muſt be a Door ſhaped to the Profile of the Frame to be open'd, either the one or the other, as the Wind happens to blow.

If a Frame of this Nature be made in the Summer Seaſon, we may plant it the ſame Summer with the following Fruits, Peaches, Plums, Nectarenes, Abricots, Apples, Gooſberries, Pears, Figs, Cherries and Grapes, the latter eſpecially ſhould be rais'd in Pots, as I have directed in my Writings; theſe may be ſucceſsfully removed when their Fruit is full grown upon them, but we have Inſtances enough of Trees that do very well, which have been tranſplanted.

I find by the planting theſe Trees in Summer, that they make very good Roots before Winter, and are ſo well ſtored with Sap againſt the following Spring, that they ſhew no Sign of their Removal, but bear extreamly, and make very good bearing Wood; and eſpecially I think it neceſſary to take this Advantage, if we deſign to force them ſooner than ordinary to bloſſom; becauſe, unleſs the Roots are well furniſh'd, the Fruit cannot be ſufficiently nouriſh'd; beſides, by this Summer planting, the Trees ſeldom or never throw away their Strength in Autumn Shoots, or make any Attempt towards it, till the Froſts in *September* and *October* ſtop their Deſign.

If we cannot have an Opportunity of planting theſe Trees till we are juſt going to uſe them, take the Peaches and ſuch like from Walls of three Years growth, and by removing them carefully, and planting them in Mud made of fine Earth and Water, they will preſently begin to ſhoot; if we apply the Heat to the back of the Frame even, ſo as to be in bloſſom a Fortnight after planting, the Grapes or Vines having been brought up in Pots to bear the preceding Year, will likewiſe anſwer your Deſign very well, but they require more time to make their Shoot, than the Peaches and Plants of that kind. In this Work I have particularly ſet down the Method of planting Trees at all Seaſons; and of the laying of Vines in Pots, I have given the Method in my *New Improvements of Husbandry and Gardening*.

I find by Experience that we hurt our Trees, if we apply our Heat before *November*. And I find likewiſe, that about the middle of that Month, or towards the End, is Time enough to bring us ripe Cherries, both Duke Cherries, and thoſe call'd *May* Cherries, early in *February*: And at the ſame time likewiſe, the Heat may be us'd for Abricots, ſo as to make the Maſculine Abricot as large in *February* as Duke Cherries, and ripen them the beginning of *April*.

Abricots, though forced in this uncommon Seaſon, will thrive and proſper well for many Years; but Cherries do not ſeem to bear this Alteration in Nature ſo well as the Abricots; however, I have known them hold ſeven Years in good Plight.

Some of the forward ſorts of Plums have been tried, and ripen about the end of *April*; and I have tried alſo the Imperial Plum, which though it is a late Ripener naturally, in this Caſe does Wonders: I judge that the *Anne* Peach would be ripe about *April*; and the early Nutmeg Nectarine, which is a great Bearer, would, in my Opinion, ripen much about the ſame Time as the Maſculine Abricot, if they were to be both forced together; and the Brugnion Nectarine would ſoon follow.

The Gooſberries, which are of themſelves apt to bud out early, will undoubtedly, by this Means, be brought very forward, that is, to have green Fruit fit for Tarts in *January* and *February*, and ripen about the end of *March*, or beginning of *April* at fartheſt, as I have experienced; and although there is a Way of preſerving green Gooſberries all the Year about, yet we find ſo great a Difference between the Preſerv'd-Gooſberries, and thoſe freſh gather'd from the Trees, that the Price of the latter is eight or ten Times more than that of the former; when green Gooſberries firſt appear'd in the Markets, they were ſold this Year 1722, on the third Day of *April*, for eight Shillings *per* Quart; but if they had had the Aſſiſtance of a little Heat, they would have been much larger in *February*, and higher flavour'd, and conſequently would have been more eſteem'd.

The Curran likewiſe, which tends to ſhoot forward, might, by that Heat which brings the Cherries in *February*, be forc'd to ripen its Fruit in *April*, or ſooner; for naturally the Heat or Temper of Air which ripens the *May* Duke-Cherry, brings the Curran ſo forward in its Fruit, that it is hardly three Weeks later than the Cherry in ripening its Fruit; but we ſhould have an eſpecial Care to plant our Currans and Gooſberries a Year beforehand, if we deſign to force them.

We might alſo plant a Row or two of Strawberries, cloſe to the back of this Frame, and they ſhould be of the ſcarlet kind: We may expect from theſe, Strawberries ripe at the end of *February*, or beginning of *March*.

The Vines likewiſe which I have mention'd, may be brought to bloſſom in *February* or *March*, and have ripe Fruit in *May*.

Among this Fruit we might here and there have a monthly Roſe-tree, and the Border might be planted with early Tulips, Hyacinths, Junquils, and Narciſſus Polyanthos, and then the monthly Production of this Frame would be in *December* Hyacinths, and ſome Tulips.

## *JANUARY.*

Hyacinths, Tulips, and Green-Gooſberries, Cherry-Bloſſoms, Strawberry-Bloſſoms, Abricot-Bloſſoms, Peach-Bloſſoms, Plum-Bloſſoms, and the young Roſe-Buds beginning to appear.

## *FEBRUARY.*

Some of the later Tulips, Junquils, Narciſſus Polyanthos, Roſes, Green-Gooſberries, Green-Abricots, ripe Cherries, Green-Peaches, Green-Plums, and towards the end, a few ripe Strawberries: Likewiſe we may then expect the Vines to put out their Bloſſoms, and the Currans to be pretty large.

### *MARCH.*

Tulips, Roſes, Junquils, Narciſſus, Duke-Cherries, Strawberries, Green-Gooſberries, Green Abricots, Green-Plums, and about the end, perhaps, if the Weather be favourable, ſome Currans beginning to turn, and ſome ſmall Green-Grapes.

### *APRIL.*

Roſes, Strawberries, the Maſculine-Abricot ripe, ſome Duke-Cherries yet remaining, ripe Gooſberries, ripe Currans, and about the end, ſome early Plums, and the early Nectarines; and Peaches ſo forward as to ripen at the end of this Month; and alſo the Grapes ſo much forc'd as to ripen the next Month, and about the end of it to be in full Perfection.

But I come now to ſpeak of the Method of planting, pruning and ordering theſe Fruit-trees, that they may give us theſe Rarities in the Months I have promis'd them; and firſt, of the planting them.

We are to underſtand, that contrary to what we have ſaid of planting Trees againſt Walls, theſe Trees muſt be planted cloſe to the Paling; for though I adviſe to plant Wall-trees with their Roots at a little diſtance from the Wall for their better Nouriſhment, the Caſe here is very different; for the Roots will run under the Pales, and draw Nouriſhment equally from the Earth about them; but the Foundations of Walls lye too deep in the Ground to ſuffer the Roots of Fruit-trees to draw Nouriſhment from the Wall ſide.

Again, in ſuch a Frame we need not plant our Trees at greater Diſtance than four or five Foot, or at proportionable Diſtances, according to the Shoots they have upon them; if they had been trained in Eſpalier, or againſt Walls, two or three Years beforehand, it would not be amiſs, becauſe of filling our Frame more ſpeedily with bearing Wood. For my Part, I ſhould not ſcruple removing Trees that had ſtood ſeven or eight Years againſt Walls, rather than want thoſe that are Bearers for theſe forcing Frames; or if they were of a much greater Age, they may be ſafely tranſplanted by the new Method which I have preſcribed in this Work.

The Gooſberries, Currans, and Roſes, will ſerve to fill up the ſmall Spaces at the Bottom of the Paling, while the Cherries, Abricots, Peaches, Nectarines and Plums, employ the higher Parts of the Pales.

When we come to pruning theſe Trees, we may follow the ſame Method of Pruning the ſeveral ſorts that I have commended before in theſe Papers; but the Time of pruning and nailing muſt not be the ſame, for this Reaſon: In the forcing Frames, our Spring begins in *November*; but in the common Caſe of Stone-Fruit againſt Walls, the Spring does not begin till the end of *January*, or in *February*, and there we leave our Trees unprun'd, till the Spring begins to ſtir, leſt the Froſts ſhould damage them, and alſo that they might not be wounded till they had Strength enough, and a favourable Temper of Air to grow freely, and help their wounded Parts. Now as the Caſe is with the Trees againſt the Paling, where the Spring begins in *November*, and the Air will be ſo temper'd by Art to ſet the Trees a growing, and no Froſts can come at them, I have found it neceſſary to prune ſuch Fruit-trees about a Week before I began to apply any Heat, and put up all the Glaſſes as ſoon as they were pruned.

In the nailing the Trees to the Pale, every Branch and Shoot ſhould lye as cloſe as may be to the Pales, for there will be a Month's Difference between the ripening of the Fruit which touches the Pales, and that which lies two Inches from them; nor in theſe Frames does the Fruit, which grows next the Root, always ripen firſt: I have ſeen the Tops of the Trees have Bloſſoms and Fruit, a Month or ſix Weeks ſooner than the Bottom; ſometimes a Branch has been full of Bloſſoms, when ten or a dozen more, growing upon the ſame Tree, have not ſtirr'd till the Fruit of the firſt Blower has been almoſt ripe, and yet the Tree has done very well; ſo that it is not uncommon for ſuch Trees to have Fruit ripening upon them near three Months.

Now, as for the Gooſberries, we ſhould pick out ſuch Plants as will ſpread; and beſides laying as many Shoots to the Paling as we can conveniently, we may leave others at a diſtance from the Pales, to follow the firſt in Fruit. I obſerv'd before, we may have them bear the firſt Year, as well as if they had not been tranſplanted, if they are taken up in the Summer, and manag'd after my new Method; the Currans may be order'd in the ſame manner, as well as the Roſes. But we muſt note, that the beſt ſort of Roſe for this Purpoſe, is the Cluſter monthly Roſe; and theſe Roſes ſhould always be top'd about the end of *July*, or beginning of *Auguſt*, to make them fling out a great Quantity of Flower-Buds, when we apply the Heat to the Pales.

We now come to conſider the manner of laying the hot Dung to the back of the Pales, and what Proportion of Air theſe Plants require while we are forcing them.

The Dung which is deſign'd for this Uſe, ought to be toſs'd up in an Heap ſome Days before it be laid to the back of the Pales, that it may yield a Heat every where alike, and be conſtant. When it is fit to apply to the Pales, we muſt lay it four Foot wide at the Baſe, and let it ſlope to two Foot at the Top, the Height in all ſhould be at firſt equal with the Top of the Pales, and in ſix Weeks Time it will ſink about a Foot and half, and then we muſt apply ſome freſh Dung to be toſs'd up with the former, which will bring our Trees into full Bloom, and ſet ſome of the Fruit; but this happens to be ſooner or later, as the Froſt has had leſs or more Influence over the Buds. It helps very much to forward the Bloſſoming of theſe Trees, to cover them with the Glaſs Lights, when the Froſts happen; for though the Froſts will not deſtroy the Bloſſoms, yet the more the Froſt comes at them, the drier they will be, and the harder they will be to open. It muſt be obſerv'd likewiſe, that no Opportunity of Showers be denied them, if the Weather be tolerably mild, till the Buds begin to ſtir; but, after that, let the Glaſſes remain over them conſtantly, till the Sun begins to have ſome Power. In the mean while, let the Doors at each End be open'd when the Sun ſhines warm, and the Wind is not too ſharp; and if this does not happen during the Space of fourteen Days, then open the Doors at both Ends, and put up Mats of Baſs or Canvas over the Door-ways, to correct the Winds, and cauſe the Air to circulate in the Frames.

About three Changes of Dung will go near to bring our Cherries ripe in *February*, allowing each Parcel to remain a Month at the back of the Pales; but if *April* proves cold, as it has done this Year, we muſt continue our forcing Heat till the Weather in *May* is ſettled, for our Plums, Peaches, Nectarines, Abricots, and Grapes; but while theſe laſt Fruits are growing, as they will be in *March* and *April*, open ſome of the Glaſſes in the Mornings when the Sun is warm and the Winds ſtill, and give them ſuch gentle Showers as happen to fall; but never let the Rain come at them when they are in Bloſſom, for it is plain from Experience, that when the Rain falls upon the Bloſſoms, before they are ſet for Fruit, they will rarely come to Good.

Now where forcing Frames of this kind are kept, the Dung, when it has loſt its Heat, may be laid into Heaps to rot, for the Benefit of ſtubborn Grounds. And we ſhould obſerve, that when we plant theſe Frames, we ſhould plant ſuch Fruits, as come forward, together; and the latter Fruits, by themſelves; for when the forward Fruits have done bearing, it would be prejudicial to them to give them any more Heat, as they muſt have, if they are ſet promiſcuouſly among the late Fruits, which perhaps may require artificial Heat till *May*.

To render this ſort of Frame ſtill more pleaſant and uſeful, we ſhould have one, which, beſides the Fruits already mention'd, ſhould have its Border chiefly diſpos'd for bringing forward Peaſe, Beans, Cabbage-Lettuce, young Sallads, Kidney-Beans, ſome Artichokes, Collyflowers, Naſturtium Flowers, and early Minth.

I have ſeen ſome of the ſecond Dwarf Peaſe which were fit to gather about the tenth of *January*, being cloſely planted to the Pales, and kept cloſe to them with a Packthread; and I have heard of ſome that were ſown about the middle of *September*, and were only glaſs'd in the Nights, to keep them from Froſts till the beginning of *November*; and then the hot Dung being apply'd, they had Fruit ready to gather about *Chriſtmas*.

The Beans next to this Row of Peaſe were fit to gather about the middle of *February*, and the Minth was very good from *November*, till there was enough in the natural Borders. In an open Part of ſuch a Border, there has been good Cabbage-Lettuce about the middle of *February*; they were of the brown *Dutch* kind; and thoſe Lettuces which were cabbag'd in *October*, have kept very ſound till *January*, chiefly the Imperial-Lettuce.

When the Peaſe are gone, which will be about the End of *January*, we may refreſh the Earth, and ſet Kidney-Beans of the *Batterſea* kind; which will begin to run by that time Beans are gather'd, that is, about the end of *February*, and about the firſt Week in *April*, will be fit to gather, and continue to bring freſh Fruit from Day to Day till the end of *May*.

The Naſturtiums being ſown about *November*, or at the end of *October*, will bloſſom about the end of *April*, or beginning of *May*; and Artichokes, by this Aſſiſtance, will perhaps be fit to cut about the beginning of *February*; but theſe, I think, take up too much room to reward our Pains.

The Produce then of this Frame will be in *November*, Cabbage-Lettuce, Minth, and young Salads.

### *In* D E C E M B E R.

Minth, young Salads, Cabbage-Lettuce of ſeveral ſorts, and green Peaſe.

### *In* J A N U A R Y.

Minth, young Salads, Cabbage-Lettuce, and green Peaſe.

### *In* F E B R U A R Y.

Minth, young Salads, Cabbage-Lettuce, Beans, ſome green Collyflowers, and Artichokes.

In *March* we have theſe continued, and about the end of *April* we have Kidney-Beans and Naſturtium Flowers, beſides the Fruits, as in the other Frames.

To bring Cherries in *December*, it has been practis'd to pull off all the Bloſſoms of a Tree as ſoon as they were budding out in the Spring, and the Tree kept very dry from Rains all the Summer; and about the end of *July* or in *Auguſt*, give it gentle Waterings, by little and little, ſo that about the end of *September* it has been full in Flower; we muſt then keep the Glaſſes over it, and about the end of *October*, if the Weather be cold, or beginning of *November*, apply the Dung to the back of the Pales, and give freſh once a Month; ſo we may expect ripe Cherries in *December*.

If we have two of theſe Frames, they ſhould ſtand about twenty Foot a-part, for the greater Freedom of the Air, and that the Sun may have the Opportunity of warming the Ground in the Front of the back Frame.

The Morello Cherry, which is apt to come late, will hang a long time upon the Tree, even till the end of *October*; and, I believe, if we were to ſhelter ſuch Trees from the Froſts with Mats or Glaſſes, the Fruit might remain a Month longer upon the Tree, and perhaps till *December*, for it is not apt to rot as other Cherries do; this Cherry likewiſe is very apt to bloſſom twice in a Year, the firſt about the end of *April*, and the ſecond Bloſſom about the end of *July*. Now it is likely, that the Cherries which I have ſeen upon theſe Trees in *October*, were the Fruit of the ſecond Bloſſom. A curious Member of the *Royal Society*, *William Tempeſt* Eſq; had a Cherry of this ſort, if I miſtake not, ripen'd in *November* from the ſecond Bloſſoms. I would adviſe therefore, the taking off all the Spring-Bloſſoms from a Tree or two of this ſort, to make it Bloſſom the better for a Crop of Winter Fruit; it is the moſt hardy of all the Cherries.

It is obſervable, that Currans will remain good upon the Trees till *October*, if the Buſhes are well matted up as ſoon as the Fruit is colour'd; but it muſt be a very dry Seaſon when the Mats are put on: I am of Opinion, that we have many ſorts of Fruits which will hang upon the Trees all the Year about, and be fair to the Eye all that Time, if they are kept from the Froſts. Mr. *Fairchild* has now one of the Nonpareile Apples, upon a ſmall Tree in a Pot, which ſeems capable of holding good till the Bloſſoms of this Year have ripen'd their Fruit.

We ſhould likewiſe provide ſome Beds of Strawberries, chiefly of the ſcarlet Kinds, to bear Fruit in *September* and *October*; and the Hautboy-Strawberry likewiſe, will bear Fruit at that Time of the Year; but all theſe muſt have their Bloſſoms pinch'd off in the Spring, as ſoon as they begin to appear, and the Plants kept dry, till about the middle of *July*, and then gently refreſh'd with Water. This Method will certainly make them bear as I ſay; but they ſhould be ſhelter'd from the froſty Nights in *September*, with Mats upon Hoops, to make them hold bearing till towards the end of *October*; from two Beds, each thirty five Foot long, and four Foot wide, I have had near a Quart of Strawberries a Day from this Autumn Bloſſoming.

But I come now to mention what Helps we may expect from hot Beds, towards the Furniture of the Table in the Winter Months, and that, with good Management, may be very conſiderable; as Kidney-Beans, Aſparagus, Cucumbers.

As for Kidney-Beans; I once ſow'd ſome about the middle of *July*, and they began to bear Fruit about the end of *September*; but not being ſhelter'd from the Froſts, which were pretty ſharp about the middle of *October*, the Plants were loſt. A ſecond Trial was made by a Friend, who ſet ſome of the Dwarf-Kidney-Beans at the end of *July*, in common hot Bed Frames, but did not put on any Glaſſes till the ſmall Froſts at the end of *Auguſt* began, and then only cover'd them a Nights: Theſe began in *October* about the 15th, to have Beans upon them, and, without any artificial Heat, he gather'd Beans till the middle of *November*. The following Year I had Baskets made a little open on the Sides, and about ten Inches over, ſuch as I have preſcrib'd for Cucumber Plants in my *New Improvements*; in ſome of theſe I ſet Beans the end of *July*, and, in others, I planted ſome about the middle of *Auguſt*, and placed them in Frames, for the Conveniency of covering them when the Froſts began. About the middle of *October* I had a hot Bed made to yield a very gentle Heat, and ſet my Baskets of Plants upon it. The Beans planted in *July* had Fruit much about the beginning of *September*, but thoſe ſet in *Auguſt* did not Bloſſom till the beginning of *November*, and, about the end, had Fruit fit to gather; and all this while the others yielded Plenty of Beans.

About the end of *November*, I had a freſh hot Bed made, and put into it only the Kidney-Beans rais'd in *Auguſt*, and gather'd good Fruit from them till near *Chriſtmas*, and, I believe, they would have continued good till *January*, if they had been taken Care of; ſo that I think we need not doubt of this Rarity at an eaſy Rate, if it is cultivated with Judgment.

It might be well to conſider the ſeveral ſorts of hot Beds which I have treated of in my *New Improvements*, and in this Work, and particularly of the hot Bed made of Tanners Bark, in the Obſervations concerning the Ananas by Mr. *Telende*.

Aſparagus, and the manner of forcing it in Winter, I have treated of in my former Works, ſo that we may have it from *November* till *April*, when it comes naturally. This Year 1722, indeed the Seaſon was ſo much forwarder than uſual, that I ſaw Aſparagus growing in the natural Beds in the firſt Week of *March*, which was a Month earlier than ever I have ſeen it come up about *London* without Forcing.

We have had a late Demonſtration that Cucumbers may be brought to bear Fruit in *January*, by ſuch Management as Mr. *Thomas Fowler* gave them; and it is as evident to me, that they may be brought to bear Fruit in every Month in the Year, with Care and good Judgment; but it muſt be a Man of true Spirit and Ingenuity that undertakes it, and he muſt not want Neceſſaries; and indeed thoſe Neceſſaries, conſidering the Value of ſuch Productions, are but trifling; but were they made never ſo expenſive, yet they will not do without a briſk Genius, to uſe them according to Art.

The Reaſon why I ſay that Cucumbers may be fit for the Table every Month in the Year, is from what I obſerv'd the laſt Year. The common natural Cucumbers laſt tolerably good till the end of *Auguſt*, without ſpotting, though they run upon the Ground; and if we take care to let ſome Cucumber-Vines run up Sticks againſt Walls, they will have very fair Fruit till the end of *October*, without Spots, but eſpecially if they are cover'd in the Nights from Froſts; and in *November* and *December*, Mr. *Fowler*, Gardiner to Sir *Nathaniel Gould*, among his Cucumber Plants, of various Ages and Degrees of Growth, had Fruit ſet, which he could have brought to Perfection, if he had thought proper; but this he only did by the by, for Experiment ſake: His Aim, as he told me when he firſt began, was to cut Cucumbers on *New-Year's-Day*; which he very judiciouſly brought to paſs. And in *February* and *March*, we have had Cucumbers cut in ſeveral Places beſides this Year; and, for the other Months, there is no doubt of having them in Plenty.

While I am ſpeaking of hot Beds, I cannot avoid mentioning a very curious Contrivance of an ingenious Gentleman, *Samuel Molyneux*, Eſq; which will, in my Opinion, be of great Uſe in Gardening, and take up very little room: There muſt be a Frame made of Wood, in the manner of a hot Bed Frame, ſuppoſe about a Yard long, and two Foot over, with a Glaſs Light to cover it, and wired at Bottom, ſo as to hold a ſufficient Depth of Earth, for the Nouriſhment of the Plants it will contain.

We are then to provide a Box of the ſame Length and Breadth, of about ten Inches deep, to be fill'd with Sand, for the Frame to ſtand upon, the Bottom of this Box to be a thin Iron Plate. Thirdly, We muſt cauſe a Box to be made of Iron Plate, proportionable to the Box of Sand, ſo deep that a Lamp may burn in it; and at one end of this Box there may be an Outlet for the Smoak, to be us'd as we ſee Occaſion. Upon this Iron Box, which may be made to move upon Wheels or Rollers, we are to ſet the Box of Sand, and upon that the Frame of Earth; I ſuppoſe the Iron Plate at the Bottom of the Box of Sand may ſerve for the Top of the Iron Box where the Lamp is to burn.

The Oil which may be us'd for the Lamp, will coſt about ſix Pence *per* Quart, and a Quart of Oil divided into eight Parts, will laſt burning ſo many times twelve Hours.

If we conſider that ſuch a Body of Sand will hold an Heat for eight or ten Hours when it is once warm'd through, we need not keep the Lamp always burning, ſo that perhaps then a Quart of Oil may ſerve a Fortnight; but there may be a Thermometer plac'd in the Earth, within the Frame, to ſhew us when the Lamp may burn, or when it may be put out, and a little Experience will inform us of the juſt Quantity of Oil neceſſary to be expended. In my Opinion, Heat may be regulated to any Degree we deſire, by this Invention; if it is too moderate, we may take away ſome of the Sand, and if too violent, we may add more: Beſides, we may move this hot Bed from Place to Place; that is, it may ſtand Abroad in fair Weather, and be ſhelter'd in a Green-houſe, when the Weather is very ſharp and froſty.

But in the moving of it from Place to Place, I think it adviſable to fix its Face always to the South, and not for the ſake of getting a little Sun, to change it ſometimes to the Eaſt and Weſt, for it is the Nature of Plants always to ſtand ſtill, and never to change their Face from the Point they were firſt directed to; and this has been ſo much regarded by the old Planters, that they direct us, when we plant Trees, to ſet always that ſide of the Tree which ſtood towards the South, as exactly as may be, to point the ſame Way; and even among the ſmaller Plants, I think it is reaſonable to do as much, for they are under the ſame Law of Nature.

There are two or three Things more I ſhall mention relating to this Garden, before I ſpeak of the Walls which are to encloſe it. The firſt is, the Method of bringing Beans to bear early with Safety, and without the Uſe of hot Beds. When we ſet our Beans for a forward Crop, we ſhould put a good Quantity of them into ſuch Places, as may be cover'd with ſuch Frames as are us'd for hot Beds, when the Froſts begin; and by that Means, if all thoſe that ſtand abroad ſhould be deſtroy'd by Severity of Weather, we may plant out thoſe which have been preſerv'd under the Frames in their Places, and they will proſper very well, and bear plenty of Beans, if they have not been too much confin'd, or have not been drawn too much under the Glaſſes; for then they would be tender in the Shank, their Joints wide, and their Fruit weak, and few in Number. I have try'd this with good Succeſs; and whether the Plants of Beans have been ſhelter'd or not, they may be tranſplanted very well in the Spring, though they are four or five Inches high, and even in *May*, if we cut them down within two Inches of the Ground, a Week before we tranſplant them.

The next Thing is, to ſow Cucumbers the beginning of *May*, in Drills; the Seeds may be ſet about ten Inches aſunder, and the Drills may be a Foot a-part. When the Cucumbers have made their ſecond Leaf, ſet a Line of Bruſh-Wood Stakes about five Foot high, between the Lines of Cucumbers, and they will run up theſe Stakes of their own accord, and bring very good Fruit till the end of *September*, and even in *October*. We may note, that Cucumbers thus rais'd without tranſplanting, if they have the Liberty of running up Stakes, will not be ſubject to the Rot or Canker, as I have experienced.

Laſtly, We ſhould have in this curious Garden, Conveniencies for raiſing of the Ananas or Pineapple, ſuch as are deſcrib'd in this Treatiſe.

Thus having gone through what I propos'd in deſcribing the Frames for forcing of Fruits, Flowers, &c. out of their wonted Seaſons, I come in the next Place to inform my Reader of the Method of building the Walls which ſhould partly encloſe this Garden, and may be ſo order'd, that we may forward the Fruits planted againſt them as we ſhall ſee convenient; and I ſhall be the more particular in my Deſcription of theſe, becauſe it is not every where in *England* that we can find hot Dung enough for hot Beds; and there are many Countries where Coals are in ſuch Plenty, that the Expence of warming Walls of ſeveral hundred Foot long, will ſcarcely amount to thirty Shillings *per Annum*; for the ſmalleſt Coal, ſuch as is generally counted good for nothing, except mending the Highways, will do for this Uſe.

The Walls I ſpeak of ſhould be expos'd to the South Sun, for the Walls lying to the Eaſt, Weſt, and North Aſpects, as they are not ſufficiently in the Sun's Way to bring Fruit forward, ſo they may be built after the common manner.

The Walls then, which lye to the South-Sun, ſhould be built eight Foot high, with Fire-places at the Back, at twelve or fourteen Foot diſtance from one another. From each of theſe ſhould run a Flue of nine Inches ſquare, parallel with the Border, about four Foot and half from the Centre of the Fire-place, and then riſe in an upright, about a Foot and half, and be return'd towards the Peer over the Fire-place, parallel to the firſt, and riſe to an upright as before, to be return'd back again in courſe with the firſt: And theſe Turnings of the Flue muſt be continued till it comes near the Top of the Wall, and lets its Smoke out at a Chimney over the Fire-place. We are to note, that theſe ſort of Flues may be carried both from the right and left of a Fire-place, and by that Means the Fires being about twelve Foot diſtance from one another, the whole Wall may be regularly warm'd at once, if we think proper, or about ten or eleven Foot of Wall may be warm'd at a Time by one Fire only.

The Border on the South-ſide may be rais'd ſo high as that the Earth might lye againſt the bottom Flue, to be warm'd the better.

This Wall ſhould be two Bricks thick, for the better forming the Flues, as well as for its Strength; and for the better regulating the Flues, and for the greater Eaſe of the Builder, there ſhould be made on purpoſe Tile-Bricks of eighteen Inches and a Quarter long, nine Inches and a Quarter broad, and two Inches and a Quarter thick, which will at once cover the Flues, and reach the whole Thickneſs of the Wall. Now conſidering the Space which will be vacant in the Flues, ſuch a Wall will hardly take up more Bricks than a Wall of a Brick and half thick.

When this is done, we muſt provide Frames and Glaſſes, in the manner of thoſe us'd againſt the Paling I have already treated of, only with this Difference, that if we have a Mind to force a ſingle Tree, only that Part where the Tree is, may be cover'd with Glaſſes, and ſhut up.

The Border may be four or five Foot wide; and if the Glaſſes were to be ſet upright, and a Covering of ſloping Glaſs from thoſe to the Wall, one might then have room to walk within-ſide. By the help of this Contrivance, we may have every Thing mention'd in the forcing Frames, as above; and one might add Carnations too, to be kept blowing all the Winter, and the *Spaniſh* Jeſſamine; and if they were nail'd againſt the Walls, they would open their Flowers very large.

But theſe Walls would likewiſe be extreamly uſeful, to forward our late kinds of Grapes and Pears, and with good Management, might in a manner place us in as warm a Climate as thirty Degrees Latitude. And beſides, here our Crops of Fruit would never fail us, if the Trees were in a bloſſoming Condition, and were well prun'd; and the Advantage that might be gain'd by the extraordinary Number of Fruit, and its ſuperior Excellence, would very ſoon return the Expence of the Glaſs Frames, and the Trouble of making Fires.

The Pears which we ſhould cultivate againſt ſuch a Wall, ſhould be thoſe which are brought to Table in the Winter, as the Colmar, Bon Chretien, *&c.* which want Sun at our Autumn, to give them their true Flavour; ſo that if we force them to bloſſom about ſix Weeks or two Months ſooner than uſual, we may be ſure to have their Fruits as excellent as they are any where in *Europe*.

The Grapes which might be help'd by theſe Walls, are all the ſorts of Frontiniacks, the Raiſin Grape, and every other ſort of late Grape, even the Canary Grape, only by bringing them to bloſſom in *March*; there would then be Summer enough for their Growth and good Ripening; but againſt this Wall alſo, we muſt not forget to have ſome of the forward ſorts of Grapes to ripen about the end of *May*, as they have done already in *England* by ſuch Means.

To conclude, I ſhall inſert a Method of making a hot Bed by Means of Fire, for the Service of thoſe Gardiners who have but little Opportunity of getting hot Horſe-Dung; this I learn'd from Mr. *Benjamin Whitmill*, a curious Gardiner at *Hoxton*. He preſcribes, to make a Frame of Brickwork of any Length, but as wide only as a common hot Bed, to have a Fire-place at one end to paſs into a Flue, which ſhall wind from Side to Side till it reaches the other end, and diſcharges its Smoke by a Chimney; the Top of theſe Flues may be cover'd with ſquare Tiles, or ſuch Tile-Bricks as I have mention'd before; and when the intermediate Spaces between the Flues are fill'd with coarſe Sand, cover the whole with ſquare Tiles, and raiſe the Wall about ten Inches above the Pavement, ſo that we may cover the Pavement as deep with Sand, if we ſee Occaſion; then upon this Sand place ſuch Frames as are commonly us'd for hot Beds, with Wire at the Bottom, to hold the Earth in them, that the Earth may receive the Heat of the Sand: And, I am of Opinion, it may be as uſeful as any hot Bed, and be more laſting and leſs troubleſome.

We may ſee the Method of the Flues for the great Wall in *Fig. II.*

Since I have written this, I have learn'd from the curious Mr. *Dubois* at *Mitcham*, ſomewhat more than I have yet related, concerning the Production of Peaſe in the Winter: That Gentleman informs me, that he gather'd Peaſe this

Winter, from about ſix Plants which were ſown in a Pot late in the Autumn, and that had ſtood expos'd abroad for ſome Time, and ſhelter'd, during the rude Seaſon, in the Conſervatory; they were of the ſecond dwarf Pea kind, which bear plentifully, and were train'd upon Sticks; the Peaſe gather'd at one Time, yielded, when they were ſhell'd, about half a Pint, which turn'd to good account, conſidering the Ground they took up; and I think it would be an agreeable Amuſement for ſuch as have Conſervatories to cultivate either this ſort of Pea, or the ſmalleſt Dwarf in Pots, ſo as to have them all the Winter, without extraordinary Trouble.

I forgot to mention, that this curious Garden ſhould have one Part of it diſpos'd for Muſhroom Beds, after the manner I have directed in this Work.

## *An Account of the accidental Bloſſoming of a* Pear-Tree *in this Month, with ſome Remarks concerning the forcing of Fruit-trees to bloſſom out of their natural Seaſon.*

IT is no new Thing to obſerve Fruit-trees of every kind, to bloſſom now and then out of their natural Seaſon; and yet I have not found any Author, who has yet attempted to explain to us the Cauſe of ſuch Appearances.

Mr. *John Millet* indeed, a very ingenious Gardiner, late of *North-End* near *Fulham*, was accidentally brought to conſider how far this Chance-bloſſoming of Trees might be render'd advantagious, as appear'd from his bringing Fruit, ſuch as Abricots and Cherries, to good Perfection, on, ſome Months before Nature alone would have done it; but I could never hear him aſſign any Reaſon more for what he did, than that the Heat he laid at the Back of his Frames would puſh the Trees nail'd againſt them into Bloſſom, a few Weeks after he had apply'd the Heat. But, as I had ſome Familiarity with him, and he often ſhew'd me his forward Garden, I obſerv'd that he prun'd his Trees out of the common Seaſon; but neither he nor my ſelf then thought more of it, than that the Trees prun'd in ſuch irregular Seaſons were ready for bloſſoming and ſhooting, when he was diſpos'd to apply an Heat to the back of his Frames.

The Roſe-trees, which he commonly had in Bloſſom ſoon after *Chriſtmas*, of that ſort call'd the monthly Roſe, were always nail'd againſt the ſame Frames where his forward Fruit-trees grow. He told me, his Way was to prune off all the Flowers, whether Roſe-bud or open Flowers, which were found upon them, about the end of *July*, or beginning of *Auguſt*; and at the ſame time he cut off the Top of all thoſe Shoots, which had produc'd Flowers that Summer, as well as thoſe which had not; but he ſaid likewiſe, that his chief Dependence was upon thoſe Shoots which had been Bearers the ſame Summer: From whence, ſays he, every cloſe Bud, will about ſix Weeks after Pruning ſpring and ſhoot; and when the Heat comes to the Tree, every one of the new Shoots will bring Flowers at their Extremity. And I have often ſeen in my own Practice, that without this ſort of Pruning, the cloſe Buds I ſpeak of will lie dormant all the Winter, without ſtirring till the Spring advances. So I have likewiſe obſerv'd in Fruit-trees, in ſeveral Gardens, where the Skill of the Pruner has not been extraordinary, that by cutting Fruit-trees too early, or topping the Shoots of the ſame Summer, the Buds left upon thoſe Shoots ſprouted ſuddenly before their natural Time, and have come to bloſſom at a wrong Seaſon.

But this Pruning alone is not of any valuable Uſe, unleſs we can humour the bloſſoming times of ſuch Trees, with a Degree of Heat ſufficient to bring the Bloſſoms to Perfection in ripe Fruit: And as this Degree of Heat muſt be produc'd artificially, ſo we ought to enquire how it acts upon the Roots or Branches ſeparately, or whether it has the ſame Influence upon both; which leads me to the following Account, and from the Obſervations which have been made upon it, to clear up the Doubts, as well as we can, of the Effect extraordinary Warmth and uncommon Pruning may have upon Plants.

The Caſe, as I receiv'd it from Mr. *Edon*, a noted Builder near the *Monument*, *London*, is this: In *April* laſt, near *Moorfields*, he had Occaſion to build ſeveral Houſes in an open Piece of Ground, which had formerly been, as I imagine, a Garden; for I find upon Inſpection, many large Pear-trees of great Growth are now ſtanding; one of which, that happen'd to lie neareſt to the Place of Building, was appointed the Spot where the Workmen were to ſlack their Lime: At the beginning of the Work the Tree was full in Bloſſom, and promiſing of good Fruit; but Mr. *Edon* ſuppoſes, that the Slacking of the Lime about it was the Reaſon it did not produce any Fruit that Summer, and made the Tree to loſe its Leaves ſooner than other Trees.

The Lime was brought freſh about three or four Times every Week, about two hundred at a Time, which ſometimes was laid on one ſide, ſometimes on the other ſide of the Tree, and now and then touch'd the Bark of the Tree, ſo as to reach about five Foot high of the Stem, the which Stem is near a Foot Diameter; and it was obſerv'd likewiſe, that the Lime for the moſt Part was laid on that ſide of the Tree which was next to the Buildings, which this *October* has the greateſt Share of Bloſſoms: This Practice of ſlacking the Lime about the Tree was continu'd till *Auguſt*, at the end of which Month a freſh Set of Bloſſoms began to open, when I obſerv'd them as fair and promiſing of Fruit, as any I had ſeen in *April.*

In the mean while, I alſo remark'd ſome vigorous Shoots of the laſt Year, which meaſured about a Yard and a half in Length, that were ſet with Bloſſom-buds, from the Top to within a Foot or ten Inches of their Bottoms: The Reaſon of which, I ſhall have Occaſion to mention by and by.

From this Practice of Mr. *Edon's*, it ſeems that the ſlacking of Lime over the Roots of a Tree will occaſion the Tree to bloſſom a whole Seaſon before its Time, or may be ſaid to gain one Seaſon in three compleatly; for the natural Heat of the Summer alone would have only given us plain Shoots, perhaps without Bloſſom-buds; and the following Year at the ſooneſt, in ſome ſorts of Pears, would have mark'd thoſe Shoots for Flowering the ſucceeding Spring. But this Accident has not only made the Tree ſhoot, but has ſet thoſe Shoots for Bloſſom, and has even open'd thoſe very Bloſſom-buds in ſo temperate a Seaſon, that many of them ſet for Fruit; and in *October*, when I gather'd ſome Branches, I obſerv'd ſome young Fruit that were as large as Hazle Nuts.

What I can judge from hence is, that the ſlacking of the Lime three Times *per* Week over the Roots of the Tree, has given ſuch Heat and Moiſture at thoſe Times to the Roots, as was neceſſary to make them ſhoot more vigorouſly than they would otherwiſe have done; and that the Lime Water, which at ſuch Times ſoak'd into the Earth, afforded thoſe Roots ſuch a Share of extraordinary Nouriſhment, as their extraordinary Shooting requir'd.

And the intermediate Times between the Slackings of the Lime might perhaps be ſo checking to the Growth of the Roots, which were vigorouſly ſet to work by the hot Lime, as might occaſion the Shoots from them to knit for bearing the ſame Year.

As in the Account from Mr. *Edon* I find that the Lime very ſeldom touch'd the Bark of the Tree, ſo it appears that the Lime acted only upon the Roots, and that Action put all the other Parts of the Tree in Motion, even when every other Tree was out of Growth, or without Shooting: And more particularly we may obſerve, that the Shoots of the Tree, on that ſide where moſt of the Lime was ſlack'd, were fuller of Bloſſoms than the reſt, and flower'd ſooner. From whence we may gueſs, that every ſingle Fibre of the Root has its Twig or Shoot which correſponds with it, which in Point of Pruning ought to be had a great Regard to: For I am ſatisfied, that if we heat only the Root of a Tree, or nouriſh one Root more than the reſt, the Branch which correſponds with that Root, will give us evident Proofs of its Coherence with the Root that has been warm'd or enrich'd, and at the ſame Time all the reſt will remain unmov'd. From the Obſervations I have made of thoſe Plants which were planted againſt Mr. *Millet*'s Paling, I find that when the Dung, which was laid at the Back of thoſe Pales to bring the Trees forward, began to heat, a Bud here and there began to ſwell, and proceed to bloſſom before the others; ſometimes at the Extremity of a Branch, ſometimes in the Middle of the Branch, and no where elſe in the Tree: And this I take to be the Conſequence of heating more than ordinary ſome of the Roots of the ſame Plant, which happen'd to lye under the hotteſt Dung. A young Fibre of a Root would certainly be more ſenſibly touch'd than a larger Root: And as the ſmaller Fibres are always the extream Parts of the Roots, ſo it is natural to ſuppoſe, that their immediate Correſpondence is with the youngeſt or tendereſt Buds, or Parts of the Tree: And indeed, in the Anatomy of a Plant or two that I have done with a Microſcope, it plainly appears to be ſo; but my Notes upon thoſe anatomical Diſcoveries would be too many to inſert at preſent.

Theſe Obſervations, with what may be commonly obſerv'd in Trees which fling out now and then at unnatural Seaſons a few Bloſſoms, may ſeem to inform us, that the Root being firſt put into Motion, muſt neceſſarily force all its correſpondent Parts to anſwer its Growth. But there will ariſe this Objection: How comes it to paſs that the Branches of a Tree which are nail'd againſt the Back of a Chimney, where a

Fire is conſtantly kept, and which Fire has no Communication with any of the Roots but by the Branches, ſhould as readily bloſſom in Winter as what we have been ſpeaking of? for here ſome will be apt to ſay, the Root does not puſh before the Branch: But in anſwer to this we muſt take Notice, that the Branches and Roots of a Tree make one Body, and therefore the Juices in the Veſſels of one being ſet in Motion, muſt puſh forward the Juices in the Veſſels throughout the whole. And again we may obſerve, that in Vegetation, Plants, for the generality, are diſpos'd to puſh out Roots from their Branches, and Branches from their Roots, as one or the other is plac'd in the Earth or Air; which I think is no ſmall Proof of the Circulation of Sap, as it ſhews that the Intent of Sap is the ſame in every Part of a Tree.

And yet, once more we muſt take Notice, that as in our Caſe of the Tree againſt the Chimney, the Motion of the Sap in Winter by Warmth is in the Branches, ſo is its Progreſs through the whole Plant from thence; which we may account for by the Rarefaction of thoſe Juices which are firſt warm'd, and by natural Progreſſion or gentle Degree liquidate and force on the reſt, till all are of the ſame Conſiſtence, and have circulated to the ſame Point where the Motion began; and then the whole Sap being of one State, a continu'd Application of the ſame Degree of Heat will keep it in continued Motion. And thus far, at preſent, I ſhall give my Obſervations for helping the Circulation of Sap, *viz.* that there is ſuch an Harmony and Correſpondence between the Juices or Sap in the Branches of Trees and that in the Roots, that whatever Part is firſt ſet in Motion by Heat, will cauſe a like Motion in all its concomitant Parts.

# CHAP. X.

## *Concerning Blights and Inſects which infeſt Fruit-trees: A Remedy againſt them by Mr.* James Bruſſard, *Gardiner to his Grace the Duke of* Devonſhire *at* Chatſworth.

*To Mr.* Bradley, *&c.*

*SIR,*

I Receiv'd your's, and ſhould be glad to inform you of any Thing worth inſerting in your Books; as for preventing of Blights, I cannot ſay any thing to that, but I have recover'd ſeveral Fruit-trees, as Cherries, Dwarf-Apples, and Plums; as alſo Cabbages, and other Garden Stuff of that kind (after the Fruit and Plants were blighted and began to wither) by a Water made with Tobacco Stalks; I water'd the Trees with the ſaid Water, and in a very ſhort Time the Leaves and Fruit began to recover, and grow to their full Perfection. This Tobacco Water hath recover'd thoſe that were water'd with it; and it is a Queſtion whether thoſe that were not, will live to bear another Year.

I have had two Years Experience of this Water with great Succeſs, and find it anſwer beyond any thing that I ever made uſe of. I chiefly found this out by a Man that chew'd Tobacco, who ſpit upon a Newt, and a Toad, and thereby deſtroy'd them; from whence I ſuppos'd it a great Deſtroyer of all ſorts of Vermin.

I made two Hogſheads of Water, by infuſing ſix or ſeven Pounds of Tobacco Stalks, though one may add more as Occaſion ſerves. I am now trying another Ingredient, which I find to be a great Deſtroyer of Inſects, which, Sir, if it ſhould prove effectual, I ſhall be glad to oblige you with. I am,

*Sir,*

*Your moſt humble Servant,*

James Bruſſard.

The uſe of Tobacco, in ſuch Caſes, has long been practis'd with Succeſs, to deſtroy the Inſects that infeſt Plants, by ſtrewing Tobacco Duſt upon them, and by making a Fumigation of it under Trees; ſo I doubt not but the Infuſion of Tobacco Stalks in Water will anſwer the End full as well, and may be done with leſs Trouble. But I ſhall take this Opportunity before I leave the Subject of the deſtroying of Inſects, to introduce a very curious Letter I have lately receiv'd, which has already met with the Approbation of ſo many ingenious Gentlemen that I have ſhewn it to, that I am perſuaded, my Readers would loſe a conſiderable Entertainment, if I was not to make it publick.

## *To Dr.* BRADLEY, *F.R.S.*

*SIR,*

READing lately Mr. *Mortimer*'s Treatiſe of Husbandry, I took Notice of his remarkable Prejudice againſt the wing'd Species, inſomuch as to wiſh for a Law for extirpating ſeveral Tribes of them. I ſhall in this beg Leave to be an Advocate for theſe Innocents who cannot ſpeak for themſelves; and endeavour to ſhew, that the Services they do us, abundantly balance the Inconveniences, and that inſtead of being Nuſances they are Bleſſings, and that without them, we ſhould be like the Land of *Egypt* under the Curſe, that the Graſhoppers would come, and Caterpillars innumerable, and would eat up all the Graſs in our Land, and devour the Fruit of our Ground, and multiply ſo exceedingly, as to creep into our Kings Palaces; and Flies would ſo abound, as to be extreamly incommodious to us.

In order to make ſome Eſtimate of their Services, I lately obſerv'd a couple of Sparrows who had young ones, and made twenty Turns each *per* Hour; and reckoning but twelve Hours *per* Day, let us compute what a Number of thoſe Vermin were deſtroy'd by that Neſt alone.

40 Caterpillars *per* Hour.
12 Hours of feeding *per* Day.

480 Caterpillars deſtroy'd *per* Day.
7 Days ſuppos'd between Hatching and Flight.

3360 Caterpillars deſtroy'd by one Neſt alone in one Week.

But I hear that the Wren, Tom-tit, and other numerous Breeders, deſtroy a much greater Number; and, I believe, moſt Birds feed fourteen or fifteen Hours *per* Day, whereas I have reckon'd but twelve; and it is certain likewiſe, I might add more Days to the Computation, but I was willing to keep within Bounds.

At a Gardiner's where I lodg'd, five Miles off this City, we had in the Houſe, Barn, and Stable, ſeven Neſts of Sparrows, two of Robin-red-breaſts, two of Wrens, and one Redſtart; in the Orchard and Hedges, one Chaffinch, one Hedge-ſparrow, two Tom-tits, two Chats, one Linnet, one Yellowhammer, and one Tit-Lark; and computing at the Rate abovemention'd of 3360 Caterpillars *per* Week, by each Neſt, one with another, no leſs than 70560 Caterpillars were deſtroy'd by the twenty one Neſts in one Week's Time: But ſeveral of theſe Birds breed twice, and ſome thrice *per Annum*, and no doubt but there were ſeveral other Neſts which were not diſcover'd.

It is obſervable to every Body who is converſant in Gardening, that the farther from *London*, the more the Fruit; and I ſay alſo, the farther from any great Town or City; and the Reaſon is, the little Shelter there is for ſmall Birds, and the great Deſtruction that is made amongſt them by Boys, who take their Neſts, and deſtroy their Young; and Bird-catchers, who even in Breeding time catch the Old; ſo that where there is moſt Shelter, there the moſt Birds, and where the moſt Birds, there the moſt Fruit; inſomuch, that were I a Maſter of a Garden, I would much ſooner excuſe thoſe who ſtole my Fruit, than thoſe who robb'd a Neſt; for they pay their Landlord in Muſick, and though ſeveral of them are not of the firſt Song, yet the different Notes, and Chirpings of different Birds, do together make a moſt delightful Conſort, as well as their different Colours, Shape and Size, make a moſt beautiful Proſpect; ſo that they really heighten the Pleaſures of a Country Life, which would be little better than a Deſart without them. The Thruſh and Blackbird not only deſtroy Slugs, which devour the Colewort, Cabbage, Savoys, *French* Beans, *&c.* but alſo, where not moleſted, feed upon Snails, which deſtroy the Wall-Fruit; the Bullfinch and Tom-tit, are ſaid to deſtroy Buds and Bloſſoms; but I have been inform'd, it is a vulgar Error, and that it is a little Worm that they peck out of them, which would deſtroy the Bud or Bloſſom of itſelf, and which is often found in the ripe Fruit alive, and which the Parent Inſect lays in the Bud or Bloſſom, as a proper *Nidus* wherein it is brought to Maturity, and receives Nouriſhment at the ſame Time: But grant that thoſe Birds did ſome Harm to Buds and Bloſſoms, I take it, they do little more than what a judicious Gardiner would do himſelf, who is rarely fond of an over-great Bloom, which either dwarfs the Fruit, or kills the Tree; ſo that the Queſtion is, whether Caterpillars, or Birds? whether Fruit full grown, or ſtinted? whether green-leav'd Trees, or bare Boughs, is to be wiſh'd for? I am convinc'd of the Truth of what I ſay, by melancholy Experience; for having a Proſpect into a publick Garden, which us'd to be frequented by great Numbers of Sparrows (by ſome evil diſpos'd Perſons now almoſt deſtroy'd) the Trees by the middle of *June* were ſo eaten up by Caterpillars, as to look in ſome of their Branches almoſt as bare as in the middle of *October*. If it be ſaid that the Caterpillar lives on Leaves only, I anſwer, it is well known, that when a Tree is depriv'd of its Leaves, either by Flies, Blaſt, or any other Accident, the Fruit never comes to Perfection: And if theſe and other Vermin were not deſtroy'd by Birds, they would eat up the Fruit too, and not finding ſufficient, would deſcend from the Trees, and devour every green Thing.

The Rook is a moſt admirable Pattern of Vigilance and Society, different from moſt other Birds; they breed near one another, and keep ſo ſtrict a Look out in the Night, that neither Cat, Dog, or Fox, can paſs by them unobſerved: They have extraordinary Centinels at every Avenue to the Rookery, who give Notice of every thing that approaches, at firſt by a gentle Call, as if half aſleep, but when Noiſe or Danger draws nearer, they call louder and louder, and then are anſwer'd by the Centinel on every Tree, ſo that the Alarm quickly ſpreads.

In every Rookery that has come under my Obſervation, I have taken Notice of one Rook much hoarſer than the reſt, and him I take to be no ſmall Officer among them; his Neſt is generally near the Centre of the Rookery, upon his taking Wing they all do the like; and when they ſeem to be in a ſort of Combuſtion, upon his ſounding ſome particular Notes, they all become ſilent and quiet; they feed upon Worms, and, as I hear, Graſhoppers too, which, if true, muſt needs ballance all the Inconveniences objected againſt them.

Nature has made nothing in vain; and Birds are not only delightful, but alſo uſeful and neceſſary to us, inſomuch, that I could wiſh for a Law for their Preſervation; and that from the firſt of *March* to the firſt of *September*, it were made criminal to kill, catch, or deſtroy them, their Neſts, Eggs, or Young ones: By this Means the Game will be alſo preſerv'd, for when Boys or other idle Perſons are out ſeeking of Birds-Neſts, they deſtroy all that come to Hand, and conſequently Abundance of the Game likewiſe.

If what is contain'd in this Letter tends any ways towards an Advantage to Husbandry or Gardening, you are deſir'd to make what Uſe of it you think fit, by

*Sir,*

*Your moſt humble Servant,*

*Aug.* 13, 1723. S. C.

Upon reading the foregoing Letter to Mr. *Dubois*, Treaſurer of the *Eaſt-India* Company, that Gentleman was pleas'd to communicate to me the following Obſervations of his own, which tend to the ſame end, *viz.* the deſtroying of Inſects. In the firſt Place he takes Notice, that about the middle of *Auguſt* the Moth appears, which is the Deſtroyer of the Apple-tree; its Wings are white, mixt with Cloth Colour. As it is in the Nature of Moths to fly only in the Night, ſo he adviſes the ſetting a lighted Candle in an Apple-tree, at the Time they begin to fly abroad, by which Means great Numbers will burn themſelves to Death, as one may obſerve the Morning following under the Tree; and if we conſider that every one of theſe Moths will lay about three hundred Eggs a-piece, which will hatch into Caterpillars the Spring following; then the Deſtruction of an hundred of theſe Moths, is preventing the Increaſe of thirty thouſand murdering Inſects; and ſo likewiſe every Caterpillar or Inſect, that a Bird deſtroys, is preventing at leaſt three hundred that would otherwiſe be troubleſome to us the following Year.

The ſame curious Gentleman (Mr. *Dubois*) adds further, that he encourages the breeding of Bats, becauſe they feed upon Night Inſects; juſt ſo the Farmers encourage the breeding of Owls, which deſtroy Mice and other Vermin.

While we have yet Inſects under our Conſideration, we may take Notice of two other Obſervations of the aforeſaid ingenious Gentleman, *viz.* that the Martin and Swallow feed upon Lady-cows, which are found in their Crops: And he likewiſe obſerves, that to eaſe the Pain occaſion'd by the Sting of a Waſp, it may be done by applying a Copper Halfpenny to the wounded Part, and holding it there for a little Space, it will preſently eaſe the Pain, and prevent Swelling. And I am aſſur'd by the ingenious Mr. *Milward*, Gardiner to the Right Honourable *Robert Walpole*, Eſq; that let the Sting of a Waſp be never ſo violent, if we apply ſome of the Juice of the Fig-tree, either of its Leaves or Fruit, the Pain immediately ceaſes, and the Swelling abates, though it be ever ſo violent.

Conſidering alſo the Miſchief the Waſp does to all manner of good Fruit when it is ripe, even ſo much, that in ten Pounds worth, they will generally, if they be pretty numerous, deſtroy near a third Part. I cannot but recommend to my Reader the Practice of ſome Gentlemen who have clear'd the Country about them of thoſe troubleſome devouring Vermin; though it is at ſome Expence, I think it is not Money ill laid out; it is but offering to the People about the Place a certain Reward for every Waſp's Neſt they ſhall deſtroy, and bring as a Proof of their Work, to be burnt at the Place where they are to receive their Money; and if the Allowance is worth their while, we ſhall have no Reaſon to expect them ever after about that Place. This has been practis'd near *Hoxton* with ſo much Succeſs, that Mr. *Fairchild* tells me, that he has hardly ſeen half a Score all this Summer in his Gardens, though it was done by the Directions of a Gentleman of that Place ſeveral Years ago, at the Expence of five Pounds and upwards. But indeed I ſee no Reaſon why this ſhould not be done at a Pariſh Expence, ſince it is for every one's Good as well as Eaſe. The Way of deſtroying theſe Vermin is about the Evening, to put Pieces of lighted Brimſtone Rags into the Holes where the Waſps Neſt lye, and immediately fling a Spit of Earth over the Hole or Holes, for ſometimes they are ſeveral.

And while we are ſpeaking of Vermin that do Miſchief to Gardens, I ſhall ſay a Word or two concerning the Water-Rat, which is ſo great a Deſtroyer of Fiſh and the Roots of Trees, and preſcribe a certain Way to drive them from their Habitations; we muſt provide a large Number of Crackers, ſuch as the Boys uſe, and place them at four, five, or ſix Inches Diſtance, upon a Yard of quick Match, which is ſold by the Engineers; when we have dreſs'd as many of theſe quick Matches as there are Holes of the Water-Rats, we muſt with a Willow Twig convey the end of the Match where we have plac'd the Crackers, as far into the Hole as poſſible, only leaving a little of the Match out of the Hole; when this is done, one may provide a few Dogs to be in the Way againſt the Sport begins, which will be very diverting; then three or four Men with Port-fires, which are likewiſe to be had at the Engineers, are to be plac'd at convenient Diſtances from one another, and ſo to fire their quick Matches at different Times, as they ſee Occaſion; for every quick Match immediately ſets Fire to the Crackers, which will upon their going off, drive the Rats that are in that Place from their Cells, and perhaps, if the Dogs miſs of them, they may take to ſome other Hole, but then he who is next to it ſets Fire to that quick Match, and ſo the Crackers ſend them out again, as well as thoſe that were in before; and by keeping on this continued Confuſion among them, they quit their Station, if any be left alive, and never return to the ſame Place.

## *To Mr.* Bradley, *concerning the Influence of the Steam of Salt-Petre over Orchards in caſe of Blights.*

*SIR,*

I AM ſituate in a Country near a Petre-houſe, as we call it, or in other Terms, a Houſe where ſuch Salt-Petre as is brought from abroad is boil'd and refin'd for Gun-Powder. This Place is ſo near to me, as to communicate the Steam of the Nitre, when the People are at Work, to the greateſt Part of my Orchard and Garden, and, in the Opinion of ſome, is injurious to my Trees and Plants; but however my Orchard is influenc'd by it, we are certain that it never fails to bring me a very plentiful Crop of Fruit every Year, though all thoſe about it have very little or hardly any; and yet my Garden is not leſs expos'd to blighting Winds, by its natural Situation, than the other Orchards in the ſame Town. If I may therefore judge from the Conſequence, the nitrous Vapour, which mixes with the Air, that ſurrounds my Garden, prevents Blights, and is noxious to the Caterpillar. I remember Lord *Bacon*, in his *Natural Hiſtory*, commends the Uſe of Nitre for the Preſervation of human Bodies in Health; and moſt of the skilful Botaniſts have given it no leſs a Character for the Preſervation of Vegetables, if its Quantity be rightly proportion'd. Now, as I take it, the Air, which is ſuppos'd to bring Blights, is in itſelf thin and very quick of Motion; and therefore the nitrous Fumes, rais'd at one end of my Garden, cannot mix with ſuch

Air in too great Quantity, by means of its Thinneſs and quick Motion, for the nitrous Vapour has much groſſer Particles than the fine Air which moves with it; and the Quickneſs of Motion of the fine Air may drive before it the Fumes I mention, with that Quickneſs, that there cannot lodge too much of it upon my Trees; and thus mixing indifferently with the Air, may put that Air into ſuch a State, as may (agreeable to an Obſervation of yours) contribute to the Deſtruction of Inſects or their Eggs, which are the Blights in Trees. Or if Nitre is allow'd to be ſalubrious to Trees, and keep them in Strength, then I remember a Maxim, that a Body duly ſupported by natural Diet is not capable of admitting any Diſtemper, but on the contrary reſiſts it: This alludes to what I have beforemention'd, that Nitre in its due Quantity is a Preſerver of Health in Plants, and more particularly becauſe you ſay in ſome of your Works, that a State of Air well regulated and appointed in its Qualities, is receiv'd as well into ſome Parts of Plants, and cauſes their healthful Diſpoſition, as a Caſe of that kind would do when the animal Kingdom is the Subject. It is for Reaſons of this ſort that I ſuppoſe my Orchard is not ſo ſubject to be blighted as the reſt in our Town, which have not the ſame Benefit from the Vapour of the Salt-Petre. I ſhould be glad to know your Sentiments of this Matter, and am,

*SIR,*

*Your humble Servant,*

A. B.

## CHAP. XI.

### *Concerning the helping decayed Trees, with a Method preſcrib'd for bringing diſtemper'd ones to perfect Health; with Obſervations relating to Dale Miſts.*

SO uſeful is the Diſcovery of the Sap's Circulation in Plants, that without that Knowledge, there could be no reaſonable Method preſcrib'd for the Cure of Diſtempers in Trees, or for the renewing vigorous Growth in ſuch as are decay'd: This is not only good in Theory, but is excellent in Practice, as I experienc'd in an Operation upon ſome old dwarf Pear-Trees, that were reduc'd to ſo great Weakneſs, that their Fruit, which ſhould have weigh'd nine or ten Ounces a piece, was hardly bigger than Hazel Nuts. Some of the Trees were canker'd a little above the Roots; their Shoots were poor and ſickly, and I had ſo little hopes of their Recovery, that I hardly thought it worth while to employ my Labour or Time about them; however, that I might not quite loſe ſome of their kinds in their Death, I contriv'd to inarch ſome of their beſt Branches into free Stocks, which I had by me at that Time in good Quantity.

About the end of *Auguſt* I pick'd out of my Nurſery about fifty of the largeſt Pear Stocks I had, moſt of which were in the thickeſt Part two Thirds of an Inch Diameter; theſe I carefully tranſplanted at certain Diſtances from my ſick Trees, contriving always to have every Stock within an eaſy reach of one of the beſt Branches in my old Trees.

The Care I took in removing my Stocks gave them little or no Check; ſo that the following Spring I inarch'd ſeveral Branches of the old Trees into them; to one old Tree I had five Stocks, to another four, and ſome had only two a piece. Moſt of my inlay'd Grafts or inarched Shoots were perfectly join'd with the young Stocks in leſs than three Months; and as ſeveral of them bloſſom'd in the Spring, the Supply of good Juices from the young Stocks, which they were graffed into, ſo nouriſh'd the Fruit that ſet upon them, that I had ſeveral Pears even larger than I had obſerv'd before upon the old Trees when they were in Health; and the Branches of the old Trees neareſt to every Stock ſtrengthen'd themſelves, as did alſo in Proportion every Part of the old Trees.

When the Fruit was fit to gather, I happen'd to be travelling, which was the Occaſion that the inarch'd Cions were not then cut from the old Trees, but luckily remain'd all growing together. The following Year, to my Surprize, the old Trees had got ſo much Vigour from the ſtrong Juices of the young Stocks which circulated through them, that they had all the juvenile Appearance and healthful Diſpoſition of a young Tree: They ſhot with ſo much Strength, that I then began to fear they were in Danger of loſing their bearing Quality; and therefore I ſaw'd the main Stem of one of the old Trees more than half through, and drove a Wedge into the Wound, which yet did but little good in checking the Vigour of the Tree; ſo that I was oblig'd to cut the old Tree entirely from its Root, leaving it only the young Stocks to feed on, which it did with ſo much Advantage, that it grew well and produc'd good Fruit.

The other old Trees were all equally invigorated by this Practice, ſo that I was forced to cut off their Communication with ſome of the young Stocks, and thereby abridge their over Luxuriance, which is always an Hindrance to bearing: By this Means the Trees became more gentle in their Vegetation, and diſpos'd themſelves to bloſſom and bear Fruit. But I ſaw many Inconveniences which they would yet be ſubject to, by being treated in the manner of Dwarfs; as, that Pear-trees had three different Modes of giving us bearing Branches; ſome kinds would bear upon Wood of one Year, others of two Years, and others of three Years old, ſo that it was difficult to keep ſome of them in a regular Figure, and expect Fruit from them; and beſides, that every Gardiner was not either appris'd of this in general, or elſe was not experienc'd in the Particulars, which ſorts would bloſſom on one Year's, which on two Years Shoots, *&c.* and to prune all alike, would loſe a great deal of Fruit.

Again, I conſider'd, that the great ſpreading of theſe Dwarf-trees did not only cover a great Quantity of Ground to little Purpoſe, but prevented the Earth about and under them from receiving the Benefit of the Sun's Heat, which was neceſſary for their Health and Support.

Theſe Contemplations made me chuſe rather to lay them in Eſpalier, than ſuffer them any longer to remain Dwarfs, and accordingly I had Frames provided for that Purpoſe. In the laying of the Trees to the Frames, I was ſometimes oblig'd to cut ſome of the moſt ſtubborn Branches half Way through, that they might be brought with more Eaſe to ſpread upon the Frame; and this cutting had a very good Conſequence, for the Trees receiv'd thereby ſuch a Check in their vigorous ſhooting, that brought them to a right bearing State; the Gardiner had Opportunity of preſerving proper Shoots of all ſorts at their due Length, of maintaining proper Branches of all Kinds, ſo that there might be a continued Succeſſion of good Fruit, and preſerve the Trees from being too much incumber'd with it; for where a Tree is overpower'd with Fruit, it is ſubject to two grand Inconveniences, *viz.* the Fruit is always ſmall, or it will not bear above once in three Years: So that as I have remark'd in ſome of my former Writings, there muſt be a Succeſſion of good Branches to afford us a Succeſſion of good Fruit.

In the next Place, theſe Eſpaliers fill very little Space, and ſuppoſing the Dwarfs they were made from were planted in a Square at twelve Foot diſtance, when ſuch Trees are laid into Eſpalier, there will be Spaces of Ground about ten Foot between every Row, which admits of Air and Sun enough to help the Trees and Fruit, and may be employ'd to ſome good Uſe: But it ſhould be obſerv'd in the contriving ſuch Eſpaliers, that they rather run Eaſt and Weſt, that the South Sun may come full upon them.

Again, we have this Advantage from the Method I have here preſcrib'd, that as the young graffed Parts of the Trees ſpread themſelves, we may take off by Degrees the older Parts, and at length have our Eſpalier quite fill'd from the Wood of the young Plants, and when they come to decay, reſtore them again by the ſame Method.

Another Way of aſſiſting decay'd Trees is by opening their Roots, and laying about them the Intrails of Animals, or the Animals themſelves. I have done this in ſeveral of the Summer Months with great Succeſs, but eſpecially the Month of *June* is the beſt Time, about the 20th Day, for then the Trees are preparing to make new Roots. It muſt be obſerv'd likewiſe, that the laying of freſh Earth to the Roots of Trees ſhould be done about the ſame Time; and alſo we muſt be ſure to enrich the Earth among old Dwarf-trees, before we plant our young Stocks near them for inarching; for the old Trees muſt certainly have impoveriſh'd the Land where they have long been growing, and the Stocks being of the ſame kind would want Nouriſhment. But if by enriching the Ground about Trees we find them to grow over luxuriant, ſo that they leave bearing, then I would preſcribe a Method which has been ſucceſsfully practis'd by Mr. *Thomas Fairchild*.

In *February*, he adviſes to lay open the Roots, and cut off cloſe by the Stem ſome of the largeſt Roots with a ſharp Chiſſel, and throw in the Earth as ſoon as that Operation is over; by which Means the Tree will be ſufficiently hinder'd from an Over-flux of raw Sap, and incline it to digeſt and ripen that which it already poſſeſſes,

ſes, and ſo diſpoſe it for framing Buds for Bloſſom.

But when a Tree is thus diſpos'd for Bearing, we are to guard againſt many Accidents, as Blights, froſty Dews, Rains falling upon the Bloſſoms, and Dale Miſts. To prevent Blights, I have already given ſome Directions in my former Works; and to prevent Injuries by froſty Dews falling upon the Bloſſoms, the Reverend and Curious Mr. *Laurence* has preſcribed a Method in his Books of Gardening; and I find ſuch Advantage by defending the bloſſoming Trees from the Wet, that I am perſuaded, that if even glaſs Frames were to be plac'd over ſome of the beſt ſorts, when they are in Flower, they would ſoon pay the Expence; for where this is practis'd, as at Mr. *Millet*'s at *North-End*, near *Fulham*, there is hardly one Bloſſom miſſes ſetting for Fruit; and I obſerve, that when a Tree is expos'd to the Weather, ſo that the Rain wets the Bloſſoms before they ſet, there is ſeldom any Fruit. I ſuppoſe the Rain, in this Caſe, prevents the flying about of the *farina fœcundans*, or impregnating Duſt, according to this Syſtem of the Generation of Plants, ſo that it cannot perform its Office of ſetting the Fruit; or, in other Terms, to light upon or enter the Uterus of the Bloſſoms. The Defence againſt *Dale Miſts* is yet to be conſider'd; but their ill Effects are curiouſly deſcrib'd in a Letter to me, from the Reverend Mr. *Laurence*, which I ſhall inſert for the Information of my Readers,

## *To Mr.* BRADLEY, *&c.*

*Dear Sir,*

I Suppoſe by this Time you are return'd to *Cambden-houſe* out of the Weſt, from whence I receiv'd your very kind and obliging Letter: And as I was willing to take the firſt Opportunity to return you Thanks for it, ſo I could not but give you the Hiſtory of a Misfortune I have met with, becauſe I know you will ſympathize with me in my Grief. On *May-day* laſt, in the Morning, I had the melancholy Sight to behold all my tender Fruit (that was not more than ordinarily guarded with Shelters) ruin'd and deſtroy'd, by one of thoſe Dale Miſts, attended with a Froſt, which I have deſcrib'd in my ſecond Part. Till then I never had a more hopeful Proſpect of Fruit in my Life; but my Standard, and Dwarf Cherries, and Plums of all the beſt ſorts are, I think, totally deſtroy'd; and ſuch Shoots of my Vines as projected three or four Inches from the Wall were alſo all cut off with their Fruit. The tender Shoots of Hollies, Walnuts, Mulberries, and Aſhes were all kill'd. Abricots and Peaches eſcap'd pretty well, becauſe they were guarded with Leaves. My Trouble and Sorrow for this Loſs is the greater, becauſe ſo near me as the Church, which is little more than a Stone's Caſt off, on a riſing Ground, none of this Miſchief happen'd; but all the Vales round about me have been affected with it more or leſs: I much fear a Bliſter on my Pear Leaves, and then my Fruit will be again

gain endanger'd. How happy are they that are out of the Reach of theſe Miſfortunes? And why ſhould I love a Garden in this untoward Place? But my Religion forbids me to envy others, and ſo I am contented.

## *POSTSCRIPT.*

It is worth obſerving, that the Night preceding that of my Loſſes was attended with a much ſharper Froſt, and thick Ice; which yet, becauſe there was a freſh Air and clear Sky, did no manner of harm as I could perceive; which confirms the Obſervation I formerly made, that the Hoar Froſts in Spring and Autumn are the moſt dangerous Enemies. Dry Froſts are not ſo bad as wet ones. I am, with great Sincerity,

*Your moſt obliged humble Servant,*

Yelvertoft, May 6, 1718.

J. LAURENCE.

To prevent the Diſorders which may happen by moſt of the foregoing Accidents, when Trees are in bloſſom, the curious Mr. *Greening*, Nurſery-Man at *Brentford*, contrives to plant moſt kinds of Fruit in Eſpalier, and deſigns to prepare portable Reed Hedges in Frames, to place as well at the Back as in the Front of his Eſpaliers, as he ſees occaſion; ſo that the Trees cannot eaſily receive any harm either from blighting Winds or Rain; for theſe Frames may be ſet ſo cloſe to the Eſpaliers, that the Rain cannot get at the Bloſſoms to wet them; for Rain, when the Air has any Motion, cannot fall exactly downright: Somewhat like this is the ſort of Framing which I have mention'd in my *New Improvements*.

At the ſame Place I have remark'd an ingenious Method of pruning Figs againſt Walls, which make thoſe bear well that bring one Crop in a Year, and forward the ripening the ſecond Crops of the early ſorts, which bear twice in a Year. About the end of *July*, the late bearing Fig-Trees are commonly in their ſhoot, in order to put out their Autumn Fruit; it is then adviſable to break off their tender Tops ſo far as to leave only three or four Buds of the green Shoot, by which Means we may expect that that which is left growing will put out a young Shoot at every Bud, in order for Fruiting the following Spring; and this Method will alſo prevent the putting out the Autumn Fruit, which draw the Nouriſhment of the Tree to no Purpoſe. The early bearing Sorts at the ſame Time ſhew their ſecond Crop; and this topping the green Shoots occaſions the young growing Fruit to come ſpeedily to Perfection, and ripen ſoon in the Autumn, as I have ſeen ſome Trees do more than once; but I ſhall take another Opportunity to treat at large upon the Varieties and Method of cultivating this delicious Fruit, the right Way of its Management being hitherto but very little known.

# A General
# TREATISE
# OF
# *Husbandry* and *Gardening.*

## PART IV.

## INTRODUCTION.

Firſt, *Concerning the Order of Nature, and the Uſe of that Knowledge in the propagating and cultivating of Plants; with Remarks upon the Diſpoſition of Gardens in general.*

AS I deſign this Part ſhall conclude my Treatiſe of Husbandry and Gardening, ſo I think it neceſſary to give my Reader a Word or two particularly concerning it.

When I firſt ſet out in this Way of Writing, I had two Views, the firſt was, to inſtruct the Operators in Husbandry and Gardening in the rational Part of theſe Arts, by bringing them acquainted with the Nature of Things, and how Bodies, or Parts of created Matter, had a Dependence upon one another. In order to which, I began to explain the Analogy that there is between Plants and Animals, that thereby we might the eaſier know how to enter into that untrodden Path of the vegetative Life, or how Vegetation is perform'd; which naturally led me to conſider the Anatomy of Plants, and which at length brought me to broach that new Doctrine, that the Sap of Plants circulates as truly as the Blood does in animal Bodies, which I have in this Work confirm'd beyond Contradiction, by many convincing Experiments. At the ſame Time when I conſider'd the State of Plants to be ſo far analogous to that of Animals, I was as naturally led to think that Plants had a Mode of generating, in order to continue their ſeveral Species to the World; and this laſt, after much Labour, I think I have as clearly demonſtrated, as it is plain that a Plant is ſubject to the Laws of Nature.

*Secondly*, I endeavour'd, as much as in me lay, to render the Buſineſs of Husbandry and Gardening eaſy and intelligible to all Lovers of thoſe Studies; and that they might take the greater Delight in them, I have ſpar'd no Pains to make thoſe Diverſions uſeful and profitable; and I flatter my ſelf, that the Deſign of my Writing has had that good Effect, as to encourage the making many very conſiderable Plantations, which otherwiſe would not have been thought of, and ſo far I hope I may be ſaid to have done ſome Good to the Publick. And I hope the Method which I have propos'd for ſtoring a Garden at once with bearing Fruit-trees, will afford ſome Pleaſure as well as Profit to thoſe Gentlemen who do not think of planting their Gardens till they have Occaſion to retire to them, and uſe them, and ſo are generally forced to wait four or five Years for Fruit; but the Way, I propoſe, will immediately furniſh them.

But give me leave to ſpeak a little more fully to my firſt Deſign, *i. e.* of the rational Part of Gardening, and how neceſſary it is to conſult Nature in other Things as well as Vegetables. If we would truly underſtand the Nature of Plants, for to judge of a Plant only by the Outſide, will only inform us that it has Roots, Wood, Bark, Pith, Buds, Leaves, Flowers, and Fruit; but for what Uſe theſe ſeveral Parts are deſign'd by Nature, can only be found out by examining other natural Bodies, and conſulting how far one is analogous to the other; and ſo by Compariſon be brought to ſuch Judgment as leads us to Experiments, and thoſe Experiments declare how far we are right or wrong in our Judgment. We ſhould know alſo how far every Element is concern'd in the Welfare of a Plant; and when we are gone ſo far, we are next to think of the Parts of a Plant, and how far they each of them agree with the Parts in Animals, which we know the Uſe of; and then, when we have diſcover'd how far the Parts of the one and the other are agreeable, we are naturally brought to the Diſcovery of their Uſes, *viz.* what Parts are appointed to receive the Nouriſhment, ſuch as the Roots, which do the Office of the Mouths in Animals; the Veſſels or Channels which convey the Juices throughout the Body, as the Arteries and Veins in Animals, and ſuch Parts as are made for the Secretion of the Juices, like the ſecretory Ducts in Animals, *&c.* but then, ſay ſome, though there is a Circulation of Juices in Animals, that is ſet on Foot by the Motion of the Heart, yet there is no ſuch Pump as the Heart in Plants, and therefore there can be no Circulation of Juices. Well then, there are muſcular Parts in Animals, but there are no ſuch Parts in Plants; nor are the Nerves in Plants, nor Eyes, nor Ears: Let us then conſider why Plants are agreeable to Animals in ſome Things, and not in all. In anſwer to which, we muſt conſider that Animals have local Motion, and Plants have not; therefore all the Parts that are neceſſary to convey Animals only from Place to Place, would be unneceſſary to Plants, which are doom'd by Nature to ſtand always in the ſame Place. Now, as Animals are ſometimes in cold Places, and ſometimes in hot, ſo the Heart is neceſſary to keep their Juices in Motion. The muſcular Parts and Tendons are neceſſary to give them Strength in their Motion, and their Nerves to give them the Senſe of Feeling; their Eyes to guide them on their Way, and their Ears as well to forewarn them of approaching Danger, as to receive the Word of Command from their Maſters; but every one will certainly allow that a Plant can have no Occaſion for theſe Parts, for the Reaſon given before. The Motion of the Juices in a Plant is carried on by other Powers, ſuch as Rarifaction and Condenſation of the Air, as in ſome of my Works I have ſhewn; and this particularly depends upon the Knowledge of the four Elements and their Powers.

In this Place I cannot help taking Notice of the extraordinary Wiſdom of the Creator, and how much his Omniſcience is to be admir'd in the Contrivance of the ſix Days Work, as *Moſes* has deliver'd it to us. If we conſider the Order that the ſeveral created Bodies were made in, we ſhall find, from the Knowledge we have now of Things, that the ſeveral Bodies could not have ſubſiſted if they had not been created in the very ſame Order that *Moſes* has deliver'd to us; ſo great a Philoſopher was *Moſes* (if he was not inſpir'd) that I cannot find how his Account of the Creation can be mended, any more than contradicted. I ſhall beg my Readers Patience therefore, while we examine it, and reaſon a little upon it.

We are firſt to conſider the *Chaos* out of which the World was made, as a confus'd Heap of Matter, without Form, being nothing but a deep miry Abyſs, cover'd with Waters, and invellop'd in Darkneſs; however, this Maſs, as confus'd as it was, contain'd a vaſt Capability of Things, which only wanted to be determin'd and ſettled by an omniſcient and omnipotent Power, by whoſe Wiſdom the ſeveral rich Qualities which lay hidden and confounded with one another, were ſeparated, proportion'd, and ranged in Order, as related in the ſix Days Works.

*The firſt Day*, The Light was ſeparated from the Darkneſs.

*The Second Day*, The Firmament was made, to ſeparate the Waters from the Waters.

*The Third Day*, The Waters under the Firmament were gather'd together in one Place, and the dry Land appear'd; the Earth then brought forth Graſs and Herb yielding Seed, and the Fruit-tree yielding Fruit after his kind, whoſe Seed was in itſelf.

*The Fourth Day*, The Sun and Moon were made to rule the Day and the Night, and to divide the one from the other, and for Signs, and for Seaſons, and for Days, and for Years; and alſo in this Day's Work the Stars were made.

*The Fifth Day*, The Fiſhes were created, to be Inhabitants of the Waters, and to increaſe and multiply abundantly there, and likewiſe every winged Fowl after his kind, to multiply in the Earth.

*The Sixth Day*, Were made every Beaſt of the Earth after his Kind, and Cattle after their kind, and every Thing that creepeth upon the Earth after his kind; and laſt of all Man was created to have Dominion over the Fiſh of the Sea, and over the Fowl of the Air, and over every Thing that moveth upon the Face of the Earth; and God gave him likewiſe every Herb bearing Seed, and every Tree in the which is the Fruit of a Tree yielding Seed.

Thus the Heavens and Earth were finiſh'd, and all the Ornaments of them, as Trees, Flowers, Herbs, Sun, Moon, and Stars, Fiſhes, Fowl, Beaſts of the Field, and every creeping Thing, and at laſt Mankind, the chief of all.

But let us now enquire how neceſſary it is that this Order, and no other, ſhould be kept in the Creation of Things. Would it have been rational to have found the Beaſts of the Field before the Graſs of the Field, or the Fowls of the Air before the Herb with its Seed, or before there were Fiſh, which is the chief Food of ſome Fowls, and even of ſome Quadrupeds? or could there be Herb or Graſs without the Land had been ſeparated from the Waters? or could there be Fiſh without the Waters had been diſtinguiſh'd from the Land? or could the Plants have ſubſiſted unleſs the Waters had been ſeparated from the Waters, one Part to be above the Firmament, to fall in due Time in refreſhing Showers for the Nouriſhment of Plants? or could any of theſe have ſubſiſted without a Body of Air made ſeparate from the other Elements? as ſuch was the Firmament, which kept the Waters which compos'd the Clouds, from falling all at once upon the Earth. And beſides, what Poſſibility could there be of any living Creature's finding its Food in ſolemn Darkneſs, or even of moving from Place to Place, without Hazard or Deſpair? or when they had ſeen the Neceſſaries for the Maintenance of their Life, how ſhould they know how and when to ſhift their Quarters in ſearch of their Food, without the Diſtinction of Seaſons, which are regulated by the Courſe of the Sun and Moon, whoſe Influence we find governs the Flights of Birds, as the Stork, the Woodcock, *&c.* from one Country to another, as ſure as the appointed Seaſon is felt by them? Nor are the Fiſh leſs ſenſible of the Times when they are to have their Rendezvous at certain Places, as we obſerve in the Paſſage of Mackarel, Herrings, *&c.*

and Plants likewiſe, of ſeveral kinds, are ſo directed by theſe great Powers, that we find them earlier or later in their Appearance, according as the Sun influences them more or leſs. But if it be objected, that Plants muſt of Neceſſity have the Appearance of the Sun to preſerve them, Experience will prove the contrary; for Plants of any particular Climate will live in the ſame Climate without the Preſence of the Sun. Nor can I think, as ſome do, that Animals were not originally made to prey upon one another; for if that had not been the firſt Deſign. If the World had remain'd in a State of Innocence, the Increaſe of Animals would have been ſo great and numerous, that the Earth and Waters could not have contain'd them; nor does the Wiſdom of the Creator appear leſs in the appointing the vaſt Variety of Herbs and Plants upon the Earth, diſtinctly different in their Figures, and in their Natures; for as he ordain'd ſo great a Variety of Fiſh, Fowls, Beaſts, and Inſects, or creeping Things of different Forms, and different Natures, it is as neceſſary to ſuppoſe their ſeveral Foods ſhould likewiſe be of different Natures from one another; nay, it is apparently true from Obſervation, in ſuch as diet upon Plants only; the Goat will eat Herbs which are poiſonous to other Creatures, as well as others will eat thoſe which are diſagreeable to the Goat; the Green-Bird will eat the Seeds of the Mezereon, which would poiſon a Man, was he to eat half ſo many as one of thoſe Birds will do at one Time. The different Forms of Plants were likewiſe neceſſary, that every Animal might rightly diſtinguiſh its proper Food from the reſt; and every Inſect too was no leſs regarded in the Creation; for as all Inſects feed upon Plants, it is neceſſary likewiſe that the Figures of Plants ſhould be different from one another, to be diſtinguiſh'd by them; and ſo the Inſects too were neceſſarily diſtinguiſh'd from one another, as they were to ſerve as Food for young Birds, being tender and eaſy of Digeſtion, before their Crops or Maws are capable of digeſting Grain or Seed; but when the Birds were created perfect, they had no need of theſe Inſects to feed upon; ſo that the Creation of Inſects was not neceſſary till the laſt Day's Work, which we ſuppoſe was before there were Increaſe of Birds to require them for Food; nor do I think the Waters are leſs productive of Varieties of Plants than the Land. What numerous Diverſities may we obſerve even upon the Sea Shores? and what Plants of curious Figures do we meet with in Rivers and Lakes, which ſerve for the Food and Shelter of Fiſh? and as Plants are Bodies that are wanting of local Motion, how wiſe is the Deſign of placing their Seed in themſelves? for how elſe could they increaſe? For if we take a Survey of other created Works, we find they are endow'd with local Motion, and that the coupling of the Male with the Female is neceſſary, in order to increaſe or multiply their Species; but theſe can follow one another from Place to Place, the Male to find out the Female, or the Female to diſcover the Male; but Plants are fix'd and confin'd; therefore, unleſs they had in themſelves the Male and Female Powers, we could not expect them to increaſe and multiply; and it is likely that from this Paſſage in *Moſes*'s Writings, came the firſt Thought of Plants having a Power of generating, though it was not underſtood by what Means, nor was the Explanation of it attempted by any that I know of,

till

till I firſt made Experiments upon it in *Holland*; which when I found to anſwer my Expectation, ſerv'd very much to explain my Syſtem of the Circulation of the Sap. But as Plants are made of different Forms, and have different Virtues, as well as Animals and Inſects differ from one another, how neceſſary is it that they ſhould be made Inhabitants of different Climates? therefore with what Wiſdom was the Sun's Courſe directed as it is at preſent, to regulate the Climates to the Service of all the ſeveral kinds? but there is no End of admiring the Wiſdom and Order of this excellent Work, which is ſo wiſely diſpos'd, as to contain every Thing neceſſary for the Preſervation and Continuance of it; it is ſo ſubject to order, that no ſtrictly new Species can be produc'd; or can any different Creatures, whoſe Parts and Qualities are near enough the ſame to couple with one another, bring forth a Body which ſhall have Power to increaſe or multiply.

Before I leave this Subject, I think it *a propos* enough to give my Reader a Word or two concerning Creation, as I find it in Dr. *More*'s *Conjectura Cabaliſtica*. In the Philoſophick Cabala, Chapter ſecond, the Doctor reaſons thus, "That "thoſe Things which in his Literal Cabala he "calls the Garniſhing of the Heaven and the "Earth; namely, the Sun, Moon, Stars, Ani-"mals, Vegetables, *&c.*" In his Philoſophi-"cal Conſtruction, he ſays, "They are not on-"ly ſo, but the Generations of them." He adds likewiſe, that "Plants and Animals were the Gene-"rations, Effects, and Productions of the Earth, "the ſeminal Forms and Souls of Animals, in-"ſinuating themſelves into the prepar'd Matter "thereof; and Suns, Planets, or Earths, were "the Generations or Productions of the Heavens, Vigour and Motion being imparted from "the World of Life to the immenſe Body of "the Univerſe." So that what he before, in his *Literal Cabala*, call'd mere Garniſhings, he here ſays, "are indeed the Productions or Generations of the Heavens and of the Earth. "So ſoon as they were made (he goes on) that "he does not take upon him to define the "Time wherein God made the Heavens and the "Earth, for he might do it at once, by his abſolute Omnipotency; or he might, when he "had created all Subſtance, as well material as "immaterial, let them act one upon the other, "ſo, and in ſuch Periods of Time, as the Nature of the Production of the Things themſelves requir'd." Thus far the Doctor's philoſophical Reaſoning how the Creation of Things was brought to paſs. I ſhall now proceed to offer ſome Particulars relating to the deſigning and laying out of Gardens; wherein I ſhall endeavour to ſhew, that the more agreeable to Nature our Gardens are made, ſo much more Beauty they contain, and come nearer that elegant and polite Taſte which at preſent is wanting in Gardens.

Now we have taken this ſhort View of Nature and its Order, we may judge how ſhocking and deteſtable muſt every Thing be that is contrary to it; its Beauty is Freedom, and its Gaiety familiar; and nothing can be agreeable to the Mind, that is not concordant with it. Thoſe who make the deſigning and laying out of Gardens their Buſineſs, ſhould chiefly conſider this, and alſo inform themſelves that Nature is full of Variety, and that it is the great Variety in Nature that captivates the Mind, and draws Admiration,

ration, and eſpecially, that the more Variety there is in a Garden, ſo much the more it reſembles Nature, and, of Conſequence, is the more beautiful and pleaſing; for good Judges will judge of Gardens as they do of Pictures; the more free and lively Expreſſion is always prefer'd before the more ſtiff and formal. In the Diſpoſition of a Garden, there ſhould always be avoided the too ſtiff Regularity, as well as the too wild and extravagant; an eaſy and familiar Diſtribution of Art and Nature, of Rule and Liberty, will always beſt recreate the Mind; nor ſhould the Proportion of the Works in a Garden be leſs conſulted, for they may be too much crouded, as well as too thinly diſpers'd; and either of theſe is alike ſhocking to the Senſes, and argues want of Taſte and Judgment in the Contriver; ſo is it alike diſagreeable, to ſee Works of the higheſt Grandeur, which ought only to appear in Gardens of the greateſt Extent, attempted in a ſmall Garden; for though on a large Plan they may have a good Effect, when they are judiciouſly intermix'd with one another, yet take any one of them ſingly, and confine it to a ſmall Ground, it will loſe its Beauty. It is no leſs diſagreeable to command the Proſpect of a Garden all at once; and that generally happens from the Love our Deſigners have for diſpoſing of Gardens in regular Figures, and from their ſtudied Contrivance of making one Part uniform with the other; and then it is no Matter what the Expence may be, but the Ground muſt be level'd. Indeed, I cannot ſay but ſuch a Regularity looks very well in a Draught, but when it comes to be work'd, the Sight of it ſtupifies and dulls the Senſes, as bad as the conſtant Noiſe of a Mill, or turning round for half an Hour would do: And beſides, this ſtudy'd Regularity has another bad Conſequence; and that is, all Trees, however ſtately they be, that happen to ſtand upon the appointed Ground, muſt be taken away, to give Place to this ſolemn Stiffneſs. I ſhould not be ſo very particular on this Head, if I could find a Garden without ſome Fault or other of this kind, for then there would be an Example which might ſave me this Trouble. However, I am not to be underſtood that we have no Gardens in *England* that are agreeable, for we have many that have their Beauties as well as their Faults: But I mean, there is not one that carries the good Taſte quite through, which, perhaps, may happen from the Deſigns of them being made by Men of different Genius. We ſhall in one Part ſee ſomething of a becoming Grandeur, well diſpos'd and adapted to the Extent and Deſign of the Place; and on the other hand we obſerve ſomething as mean, and poor-ſpirited, and diſproportionable; narrow Walks of a Mile in Length, and wide Walks and Views of a hundred Feet in Length; and one Thing more is as frequently to be obſerv'd, and is no leſs improper; that is, in the diſpoſing of Pots of curious Exoticks, when they are ſet abroad in the Summer Seaſon; many of the Aloes, Fecoides, Sedums, *&c.* which never make large Plants, and whoſe Beauties will bear the niceſt Examination, are often ſet on the Ground, by the ſide of a Verge of Graſs, or Gravel, perhaps ten or twenty Feet Diſtance from one another, ſo that the Deſign of them is loſt, and they make no Appearance worthy our Regard; and this Diſpoſition is probably one Reaſon why thoſe Curioſities are not more frequently propagated. For to what End is any Thing brought into a Garden, unleſs it is made agreeable to ſome of the Senſes; ſo Auriculas, Carnations, and other curious Pot Flowers, tho' they are never ſo fine in their kind, may be diſtributed in a Garden with ſo little Judgment, as never to command the leaſt Admiration; but when they are ſet together on Benches or Stands, the Variety and Mixture of their Colours leads us to admire them, and they then make a good Part of the Ornament of a Garden; if it be ſmall, ſuch Stands of Plants may very properly terminate the Walks.

It is likely that theſe Miſtakes may proceed from four Things.

*Firſt*, From the natural Genius of the Deſigner, which perhaps is low and mean, and not daring enough to ſtudy Grandeur; or,

*Secondly*, From the want of Opportunity of obſerving thoſe Things which are great and noble, both at Home and in other Countries; or,

*Thirdly*, From the want of converſing with Men of Taſte and good Judgment; or,

*Fourthly*, From the want of Conduct, to apply properly the ſeveral Materials he has got together: Neither do I think, that when he is poſſeſs'd of all theſe Neceſſaries to make a good Deſigner, he can ever render his Draught upon Paper intelligible enough, to give us thoſe Ideas which we ought to have of a Garden before it is made; for though indeed it is true, that by ſhading of a Draught, one may in ſome ſort repreſent Hollows, Slopes, Terraſſes, *&c.* ſo that the Workmen may underſtand how to work from it; yet the Gentleman for whom it is made, can never rightly frame an Idea from ſuch a Draught of what it will be, and how it will appear when it comes to be finiſh'd: Therefore in ſuch a Caſe, I would always adviſe a Model to be made of every Garden, before it ſhould be determin'd entirely, whether it ſhould be made or not; for in a Model, we may obſerve the Riſings and Sinkings of the Ground, the Terraſſes, the Hedges, and every other Part, as it will appear to the Eye; when it is made, we ſhall diſcover by fixing ſome Point at a little Diſtance from the Model, what Parts may be ſeen at one View; and then, by ſhifting the Point, diſcover other Objects which were not diſcover'd to us before; and ſo, if by ſhifting our Points round about the Model, keeping the Eye always to the ſame Height, we find new and entertaining Objects from every Point, then one may allow ſuch a Deſign to be good; and beſides, as ſuch a Model will be made by a Scale, and every Part of the Ground, as well as every Hedge, or Plant, or Urn, Statue, or Water-Work, *&c.* will be of its intended Proportion; ſo whatever offends the Eye in the Model, muſt neceſſarily offend in the Work itſelf; but a Draught will not diſcover either the Beauties or the Faults; and really conſidering how cheap a Model might be made of a Garden, and how much Money it might ſave a Gentleman in Alterations, beſides, its Beauty which might render it as agreeable as a Picture in an Houſe, after we had made the proper Uſe of it. I wonder no Body has yet had Models of Gardens made; if it is becauſe it has not been yet thought on, or becauſe it is not known where ſuch Things can be made; I ſhall inform my Reader, that I have inſtructed one in the Method of making them, and embelliſhing them in a proper manner, who may be heard off at Mr. *Fairchild*'s at *Hoxton*; but eſpecially the moſt beautiful Gardens may be made where the Ground is the moſt irregular and uneven, where there are Hills and Pits. Theſe unlevel Spots dictate to Men of Taſte thoſe Varieties, which by diſcreet Management will afford the greateſt Beauties in a Garden, and by no Means ſhould be level'd, unleſs ſome Part near the Houſe: Where ſuch Ground as this is not met with, it is impoſſible to have any juſt Idea of the Beauties it may produce without a Model. What an extraordinary Effect has the Irregularity of the Ground in Mr. *Blathwait*'s Gardens near the *Bath?* and how much has the Gravel-Pit been admir'd in *Kenſington* Gardens? and ſo in every Place where the Hills and Hollows are order'd with Judgment, they always have an extraordinary Effect: In ſuch Places, if there happens to be the Command of Water, and the Work is larger, it ſhould be diſpos'd *a la Ruſtica*; and upon the higher Parts which are moſt remote from the Houſe, ſhould be placed Obelisks; and if a Summer-Houſe be required, let the Foundation of it and Ground Room be ruſtick Work, in Imitation of a Rock, and the Chamber above be built in the manner of a *Grecian* Temple, which would have an extraordinary Effect: All this diſpos'd in Wilderneſs or Boſquette-Work, which ſhould have here and there ſome open Places, where ſome of the Fables of *Æſop* may be repreſented by Beaſts and Birds as big as the Life, caſt in Lead, and painted of their natural Colours, and if there is Conveniency, let them play Water at one another; alſo, where Water may be commanded, it may be us'd to give Motion to Figures, which will ſtill contribute to entertain. This Boſquette-Work ſhould likewiſe be interplanted with all ſorts of wild Wood-Flowers, as Primroſes, Cowſlips, Harebells, *&c.* which will extreamly add to its Beauty: In ſhort, whatever ſeems the moſt natural, or poſſeſſes more of natural Beauties, is the grand Taſte; and whatever poſſeſſes, formal Regularity generally carries a Stiffneſs along with it, which is the mechanical Taſte. I own, that the Thought of introducing in this Wilderneſs Work, ſome of the Fables of *Æſop*, which chiefly are repreſented by Birds and Beaſts, I took from the *Verſailles* Gardens, where, even though the Ground is level, they have an extraordinary Effect; but in ſuch a Ground as I have been ſpeaking of, they will have a much better Appearance, as in its own Nature it is more rural: In ſuch Places too the Thoughts are more given to Contemplation, and ſuch moral Pieces as the Fables of *Æſop* may give us Opportunity of improving our Talent that Way, as the beautiful Appearance of natural Things may lead us to admire the Wiſdom of the Creator. A very ingenious Gentleman, whoſe Taſte in theſe Matters is much the beſt I have met with, gave me the Hint of placing Obelisks in ſuch Gardens; for, as he obſerves, good Statues are hard to come by, and a ſingle Statue here and there has ſo poor an Appearance, that we had better have none at all; but as grand Gardens cannot be quite void of Ornaments of this Nature, this Gentleman adviſes the erecting of Obelisks, which he would have dedicated to great Men, who have done Service to their Country, by fixing Inſcriptions upon the Pedeſtals of each

Obelisk; and *en paſſant* I muſt take Notice too of a concurring Remark, which another curious Gentleman made upon this Deſign, when I told him of it; that he thought there ſhould likewiſe be ſome Obelisks put up in Memory of ſuch Perſons who had wrong'd or abus'd their Country; but whether this be or be not put in Practice, it is ſure nothing can have a finer Effect in ſuch Work as I have been ſpeaking of, than theſe Obelisks.

But from this Grandeur of Deſign in Imitation of Nature, we muſt contrive to come nearer artful Regularity, as we come nearer the Houſe, and that muſt be done gradually, and not too ſuddenly; for too ſudden Breaks from one Thing to another are ſhocking, and eſpecially when the Difference is ſo great, as between natural Freedom and formal Rule; therefore when we leave the Wilderneſs we have been ſpeaking off, we may terminate ſome of its Walks next the *Parterre* or *Area*, which ſhould be always next the Houſe, with Portico's, or triumphal Arches in Lettice-Work, or, as the *French* call it *Treillage*; which Works being painted with a verdegris Green, and gilt in the principal Parts, have a very good Appearance: The Regularity of theſe Works, and the natural Order of the Foreſt Plants, which ſhew themſelves beyond them from the Houſe, make a very agreeable Proſpect. I had omitted to mention, that in the Diſpoſition of our Boſquette we ſhould chooſe ſome hollow Part to place our Orange-trees in, ſo that the Walks or Places the Trees are to ſtand upon, may move gently downwards in the manner of a Screw; and eſpecially taking Care to leave Walks about the whole, and above the Trees, ſo as to look down upon their Heads, for then we obſerve all their Beauties; but this by the by. Let us return to that Part of the Garden, where we leave the grand Part to gain gently; the *Parterre*, ſuppoſe at the ſame Diſtance from the Houſe, where we place the Portico's of Lattice-Work; over againſt the middle of the Houſe we erect ſomething with Yews, or other Ever-greens, in the Form of an Amphitheatre, and place a Line of Statues upon Pedeſtals, if we can have them good to ſtand parallel with the Line, on which the Portico's and Amphitheatre is plac'd. In the Boſom of the Amphitheatre may now be a regular Baſon with a Jet; and within the Line of Statues towards the Houſe, one may contrive a little Wilderneſs Work to be bound with low ever-green Hedges, and include only the ſmaller or moſt dwarf flow'ring Shrubs. This will make the Break from Nature to Art the more eaſy, till now next the Houſe we have a Piece of Ground more apparently regular and adorn'd with Ever-greens, Urns gilt, or otherwiſe, *China* Jars, and ſuch like, which is the Beauty of the *Dutch* Gardens. The Regularity in this Part, if it is not crouded, is not amiſs, becauſe it joins with a Building which ought to be regular; and beſides, as the Bounds of this Area or *Parterre* ſhould be no more than what may all lie under the Eye, from the grand Apartments of the Houſe, it ſhould have Symmetry and Order in it; but eſpecially, it ſhould not be confin'd by any Walls, if poſſible, or, at leaſt, the Walls ſhould be hidden by ſome Means or other. I ſhould eſteem it likewiſe one of the greateſt Faults, to fence in the grander

Part of the Work with high Walls; for all Occaſion ſhould be taken to make ſuch Works appear without End; of which, the Gardens of *Verſailles* are a very fine Example. But though it is impoſſible that any one leſs than a prime Monarch could ever be Maſter of ſo great and noble a Deſign as *Verſailles*; yet from thence a Man of true Taſte may extreamly improve his Genius, and render many of its Beauties conformable to ſmaller Deſigns, as well as it would quite confound and deſtroy one of no Taſte, or of an indifferent Genius. As for fine Fruit, it is by no Means proper in ſuch a Garden as I ſpeak of, which ſhould always have its Situation in the Kitchen-Garden; nor would I have my Reader, after peruſing the Conjectures above, believe, that there is not a Poſſibility of making an elegant Garden, under a hundred Acres; for the grand Gouſt may be as well ſhewn in a ſingle Acre, as in a thouſand, as ſure as a Gentleman will always ſhine, let his Circumſtances be ever ſo narrow.

While I am upon the Subject of Gardens, and the Decorations of them, it will not be improper to give my Reader ſome Account of raiſing of Water, which makes ſo beautiful and uſeful a Part of the Deſign, eſpecially in the hotteſt Seaſons.

The Heat of the Weather, which we commonly expect in *June*, has furniſh'd me with ſome Thoughts concerning the Building of cool Rooms for our Recreation in Summer; which, I think, can be no leſs agreeable now, than the Inventions for warming Rooms are in the Winter: For as in the colder Months nothing is more generally agreeable than warm Cloaths and good Fires; ſo when the Sun is in its full Force, there is nothing more refreſhing, or affords more Pleaſure to Mankind, than cool Breezes, whether natural or artificial; which, provided they are moderate and conſtant, will invigorate the Spirits, and help the Health of the Body. Many of the Curious have already endeavour'd to purchaſe the pleaſing Coolneſs I ſpeak of, either in Grotto's or Pleaſure-houſes, plac'd in the middle of Woods, but have, in my Opinion, fallen ſhort of their Aim, for want of taking proper Meaſures to keep out the Sun's Rays, or the Air, which is heated by them, either of which is equally capable of warming whatever Place they enter; and were we to keep ſuch a Place, as we deſign for a cool Room, wholly debarr'd from Air, we ſhould then have greater Cauſe of Complaint. Some have yet been indiſcreet enough to plant their Summer-houſes on the Borders of great Lakes and Pools, believing that Water, however it is ſtagnate, or ſtill, will cool the Air; but in this, Experience ſhews the contrary; the Pool or Lake, like Looking-Glaſs, adds to the Heat of the Sun's Rays, which ſhine upon it, and the Water thus warm'd, muſt neceſſarily emit a Quantity of warm Vapours, proportionable to the Surface of the Pond or Lake, which, beſides the unwholſome Qualities which all Vapours contain, that riſe from ſtanding Waters, the Air is thicken'd, and becomes heavy enough to damp or dull the Spirits, wanting thoſe nouriſhing Parts which are neceſſary to feed the human Frame, and maintain the vital Heat: The Experiment Dr. *Deſaguliers* made ſome time ago at the Royal Society, in order to prove that an human Body is nouriſh'd from the ſame Qualities in the Air, that are neceſſary to maintain Fire, may in part explain what I have ſaid.

But where there is the Pleaſure of a River, there is alſo the continual Advantage of a flowing and circulating Air; the purling or rolling of the Stream fans the Air about it more or leſs, as its Motion is quicker or ſlower: So that an Alcove or Pleaſure-houſe, plac'd near a briſk Stream, muſt be cool and healthful in the hotteſt Seaſon, although it is encompaſs'd with Wood; for Woods of themſelves, though the common Opinion is otherwiſe, rather promote Heat than propagate cool Air; for there is always a Vapour riſing among Trees in a hot Day, which thickens and deadens the Air as much as the Vapour which the Sun exhales from the ſtanding Pools, or ſuch Waters as are ſubject to ſtagnate. It will, however, be objected, that Woods muſt be cool from the fanning of the Leaves, and thereby cauſe a brisker Motion of the Air, than the Currency of a River can do; but this, in my Opinion, is eaſily anſwer'd. In the firſt Place, the Leaves of Trees growing in a Wood are never in Motion, but when there is a ſufficient Air abroad to move them; and then it is natural to ſuppoſe, that an Air ſo briſk in its full Freedom muſt be more ſenſibly felt in open Places, than it can be where it is broken and interrupted in its Paſſage through a Wood: And, I ſuppoſe, it may be allow'd, that when the Air is fluent or rapid enough to give us Breezes or Gales, we loſe our Appetite to retire into cooler Places, as we ſuppoſe thoſe are which are gloomy and under Shade; ſo that either the Woods are uſeleſs to us when there is a free Air abroad, or when the Air is of it ſelf quiet and ſtill, the Woods are hot and unwholeſom. There is indeed always the Face of Shade in cloſe Woods, which leads us to them in hot Weather; but that Appearance is deceitful, till the natural Evening Breeze has fann'd its Way thro' them, and condens'd and fix'd the Vapour which the Warmth of the Sun had rais'd in the Day.

However, the Edge or Border of a Wood, where the Air can have due Liberty, may be proper enough to build ſuch a Room as I mention'd, ſituate, if poſſible, near a River, and where the Trees may interrupt the Sun's Rays, at that Time of the Day when ſuch a Room is moſt requir'd; which Obſervation, I think, is not altogether impertinent, becauſe I have ſeen ſeveral Pleaſure-houſes, or as ſome call them, Summer-houſes, built in ſuch Places where the Sun lies upon them at thoſe times when they would be the moſt uſeful, thereby rendring them diſagreeable to their Deſign. Things of this Nature too frequently diſcourage our Nobility from proceeding in their Undertakings, and make them ſometimes regret the Expence they have been at; it is therefore I would drop as many Hints as poſſible relating to this ſort of Building, that my Readers may be appris'd of every Thing neceſſary to be thought of in ſuch a Work.

As for the Building itſelf, the Walls ought to be very thick, and the Windows ſo diſpos'd, that they may, as Occaſion offers, either ſhut out the Heat or warm Air, or be render'd capable of admitting the Light and cool Air: We may likewiſe obſerve, that in lieu of Glaſs, we ſhould either uſe Saſhes of Canvaſs or oyl'd Paper, which will ſtill contribute to the Coolneſs of the Room, as we find by Experience in the hotter Countries.

The Houſe, Fig. I. ſhould, in my Opinion, be either round or polygonal, and not ſquare; becauſe the more Sides ſuch a Building has, the leſs will the Sun, if it ſhines upon it, be capable of heating the Walls. The Section I have given in Fig. I. will ſufficiently ſhew the Nature of the Deſign; but I ſhall leave the reſt to our able Architects, only hinting that the Pillars are not only for Ornament, but for the better ſupporting the Ciſtern of Water on the Top mark'd A A. which is to ſerve the Caſcades and Fountains B B B B B, which muſt be ſo order'd, that either one, two, or as many as we pleaſe may play, and the Air thereby may be fann'd in any Proportion we deſire.

Fig. II. Shews a Chain of Buckets, which may be continually kept working, by means of a Wheel croſs the River, and will conſtantly ſupply the Ciſtern on the Top of the Houſe; and the Water being once brought together in a Body, and depoſited in a Baſon above us, will by proper Pipes give us the Jets and Caſcades we deſire.

It is indeed pretty well known, that if we have Water above us, its Weight will force its Way through Pipes, and riſe with a certain Strength agreeable to the height of the Body of Water; but as it is my Buſineſs to inſtruct, I muſt now and then be oblig'd to mention ſome Things which are ſeemingly common; and I think my ſelf the more oblig'd to do it, becauſe I obſerve, that whatever is common is the leaſt regarded by the People.

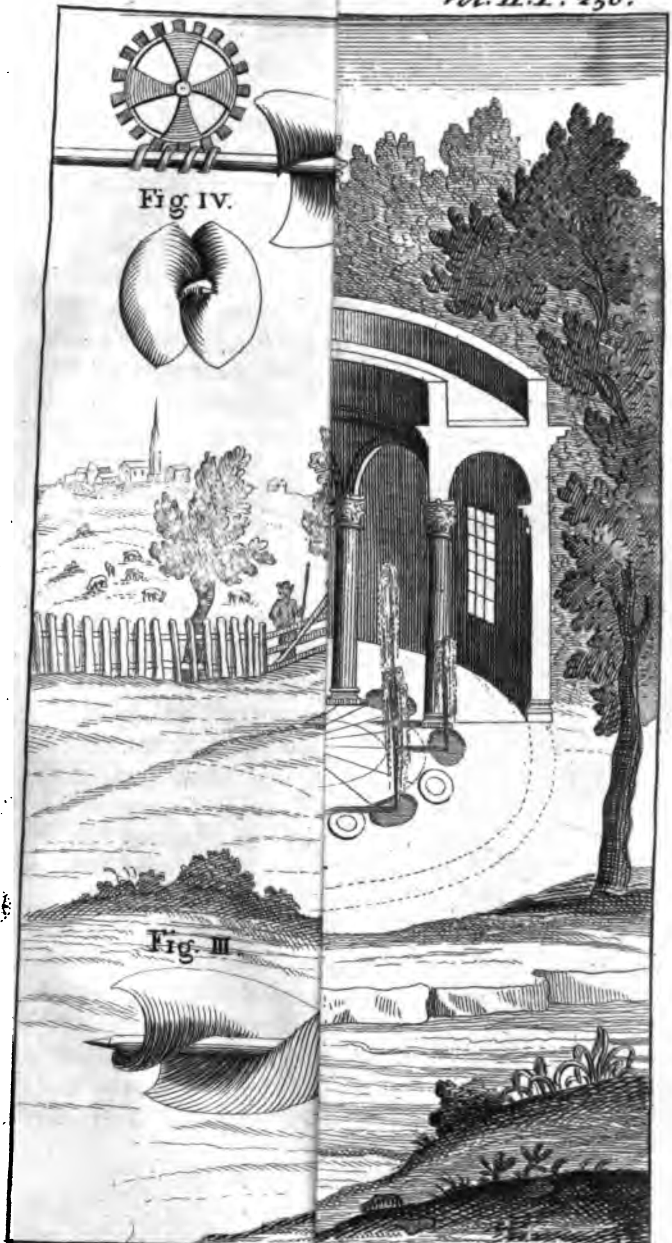


Fig. IV.

Fig. III.

So the great Wheel of a Mill is commonly known to be turn'd by the Current of a Stream, as thoſe Wheels are, which give the Movement to the Water-works at *London-Bridge*. And I doubt not, but the common People conclude, that becauſe they can be turn'd by a Stream of Water at one time, they may by the ſame Means be kept continually in Motion; but if we examine this Caſe with a little more Reaſon, we find that theſe Wheels ſtand ſtill, and are endanger'd in great Floods, ſo that we cannot always have the Aſſiſtance we expect from them. The ingenious Mr. *Harding* near *Cupid's Gardens* in *Southwark*, in order to remedy theſe Defects, has lately invented a curious Wheel, which moves as well if it is entirely under Water, as the others do in the common Mills above the Water; and his new invented Wheel carries this Advantage along with it, that without the Expence and Trouble of ſhifting it higher or lower, as Waters riſe or fall, or penning or damming up the Water, it will conſtantly keep in Motion, either backwards or forwards, as the Sets of the Stream or Tides vary.

As the Author has been kind enough to lend me the Model of it, with the Liberty of deſigning it, I think I ſhould be unjuſt to him, if I did not take an Opportunity of publiſhing its great Uſe.

This Wheel is ſomewhat fann'd like the Sails of a Wind-Mill, or rather like the flying Wheel of a Jack, which is turn'd by the Smoke of a Chimney; the Model I took my Deſign from, was made of two Slips of Tin, about two Inches broad, which were reſpectively plac'd in a Worm-like manner, upon an Axle-tree, ſo as to preſerve an equal Diſtance from one another in every

Part: This Wheel, pointing to the Courſe of a River, will continually keep in Motion, whether it lies deep or ſhallow in the Waters, or as we obſerv'd before, whether the Tide ſets one Way or the other.

The firſt Deſign of this Wheel was to work a Mill in a Barge, which might be either fix'd in any Part of a River, or mov'd from Place to Place, as Occaſion offer'd, and ſo to avoid the unneceſſary Expence of Dams, which hinder Navigation; it likewiſe appears to me to be uſeful in any Breach made by the too great Overflux of the Waters; for by the ſame Force of Water which turns it upon coming in of Tides, it would return back a great Part, by means of an Engine rightly fram'd to its Motions; and when the back Waters had the Power on their Side, it would not only move by their Direction, but by means of the Engine it works, carry over any Bank an extraordinary Quantity of Water, beſides what would return by the Breach upon the Fall of the Tides. The Axle-tree is of one continu'd Piece, reaching ſome Diſtance beyond the Wheel, and acting as a Worm or Screw works upon a Counter-Wheel; but I ſhall ſay no more at preſent of this Invention, the curious Inventor may better explain it: In the mean time, I ſhall inſert a Letter I have receiv'd from the Author, which relates to the Uſes of this new Water Wheel, which I ſhall give my Reader in his own Words.

## *To Mr.* Bradley.

*S I R,*

I Preſume it may not be amiſs to give you ſome ſmall Account of the Conveniencies and Uſefulneſs of my Water Wheel, beyond other Water Wheels.

*Firſt*, That navigable Rivers will not admit of being ſtopt by penning up the Water, as is requir'd for all Water-Mills now made uſe of, therefore ſuch Mills are not uſeful therein: But my Wheel requires no penning up the Water, but may be ſet between two Barges, or otherwiſe fix'd to the Ground, and is never interrupted by back Water; but the deeper it lieth in the Water, the more powerful it acts, and according as the Velocity of the Stream is, ſo may the Wheel be proportion'd, either for Power or Speed.

*Secondly*, As there are many Rivers which have quick Currents, but will not admit of penning up its Heads of Water, by reaſon it may endanger overflowing the Lands adjacent, and alſo the erecting Mills is very expenſive; but my Wheel, requiring neither penning up, or ſuch expenſive Foundations, is undoubtedly much preferable to all others.

*Thirdly*, My Wheel is equally uſeful at the Tail of other Mills, where the Water is deep. For Inſtance, at the Mill which is on *Hackney* River, to ſerve that Town with Water, where they have penn'd up the Water, and interrupted the Navigation, to the great Trouble and Damage of ſuch who trade that Way; and at the Tail of that Mill is deep Water, my Wheel would perform more Work than the firſt Mill doth: And alſo at the *Temple* Mills, the ſame may be done without the leaſt Interruption to them now in Uſe.

*Sir*, I think the Conveniencies abovemention'd are ſufficient to ſhew my Wheel to be worthy Notice; and, upon any Occaſion, I ſhall be ready and able to demonſtrate, that all I have ſaid of it is Fact.

*I am, Sir, your's,*

W. HARDING.

Fig. III. repreſents this Wheel Length Ways. Fig. IV. the Front View, and Fig. V. a different View of its Fans Length-ways, with the manner how the Screw on the Axle-tree turns the Counter Wheel.

## *An Account of a new Invention for raiſing of Water, and how far an Engine of this kind may produce a continued Motion, even though the Foundation be a Still Water, or a Fund of Water without any Current.*

THough I cannot boaſt of being ſo active in the World, as ever to make any conſiderable Advantages of the Diſcoveries which now and then are the Effect of my Studies; yet I am not leſs diligent than other People in the

Employment of my Time for the publick Good; and ſometimes am lucky enough to hit upon an Invention that proves uſeful and profitable to thoſe who can puſh their Fortunes.

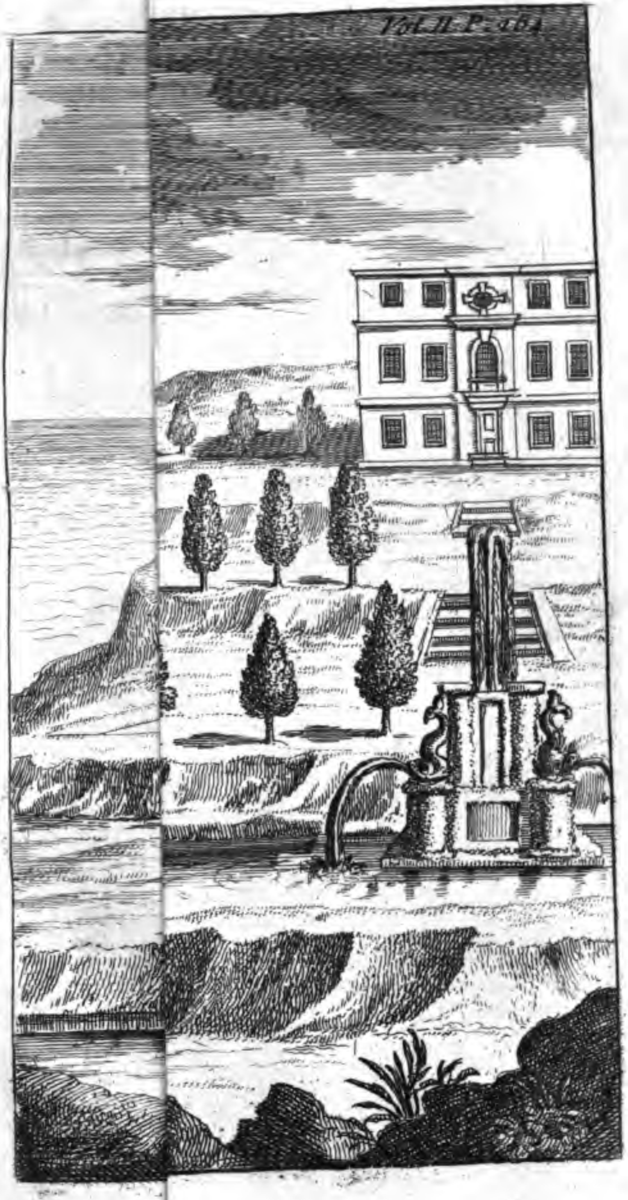
Among other Things, which make part of my Studies, I have bent my Mind ſometimes to contrive Ways for raiſing Water, and meliorating it.

One of the Deſigns, which will afford my Reader ſome Speculation, I ſhall give in theſe Papers, that it may be brought to Practice, or at leaſt cultivate ſuch Notions among the Curious, as may help their Studies.

But before I deſcribe my Engine, it will be neceſſary to ſhew my Reader on what Occaſion it may be employ'd, and in what Caſe it may be moſt uſeful, which I ſhall explain by deſcribing the Situation of the Ground, which firſt led me to the Thought of the Invention.

Near one of the moſt magnificent Palaces in *England*, is a very large Pool of ſtanding Water, which lies ſo much below the Houſe, that it is with great Coſt and Labour that the Houſe is benefited by it; nor is it more uſeful to the fine Gardens that encompaſs it, than barely to maintain Fiſh, and ſerve for Ornament. The Lands which are adjoining to this Pool, are in ſome Places higher than the Houſe, and in others much lower than the Pool; both which contribute to bring about my Deſign: For upon the higher Ground may be made ſuch a Reſervoir as will ſerve the Houſe, and the Lands which lie below the Pool are of Service to my Purpoſe, for raiſing the Water from the Pool to the Reſervoir to be made upon the high Grounds; from whence it might, for Ornament ſake, be let fall in Caſcades into the firſt Pool, or great Fund of Water, and ſo keep in Motion for a long Time. As for Example,

Fig. I. A is the great Pool of Water, from whence a Pipe muſt be laid to turn an overſhot Wheel in a Pond below it, mark'd B. The Motion of this overſhot Wheel turns a Chain of Buckets, which dip in the Pond B, and are guided up and down by two Ropes, which are plac'd at ſuch Diſtances from one another, as to keep the Chain tight; ſo that the full Buckets empty themſelves about fourteen or ſixteen Foot above the Surface of the Water in B; and the Water which is thus continually diſcharg'd from the Buckets into a Trough, runs into an upper Receiver mark'd C, where there may be about ten Foot gain'd in Height above the Pool A. When the Reſervoir C is full, we may let the Water run from thence to turn an overſhot Wheel in the Reſervoir D, which muſt be ſo much lower than C, as to cauſe a Fall to turn the overſhot Wheel in D; and this overſhot Wheel will turn another Chain of Buckets like the former, ſo as to carry the Water high enough to run into the Reſervoir E, which we may ſuppoſe lies about ſixteen Foot higher than D; and then both the Wheels with their Chains of Buckets, will have rais'd the Water about twenty two Foot above A, or the great Pool: And if that is high enough for our Purpoſe, we may let the Water fall from thence in Caſcade to the firſt Fountain A, to ſupply the Draught of Water which is expended for turning the Wheel in B; and if this be rightly manag'd, and juſt Proportion obſerv'd, I am apt to believe will anſwer the End I propoſe of raiſing Water, and the Water will be in continual Motion, and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enrich it ſelf by rolling through the Air. And this Succeſſion of Motion I am at preſent perſuaded may be obtain'd, if it is ſet on Foot at a Seaſon of the Year when the Land Waters will furniſh us with enough to fill the Reſervoirs mention'd; and that there may be an Equipoiſe in the Buckets working up and down the Chains: I have already ſeen two Inſtances.

# CHAP. I.

## *An Account of ſuch Inventions as are now in Uſe, or may be practiſed with Succeſs, for the forwarding of Fruits and Flowers, and the Preſervation of Exotick Plants, by Means of Fire in the Winter.*

IN my foregoing Papers I have hinted at thoſe artificial Heats for the Uſe of Gardiners, which are occaſion'd by Fermentation; but it will now be my Buſineſs to treat of ſuch Conſervatories for the Preſervation of Plants in the Winter. The firſt I ſhall mention is a Contrivance for forwarding the ripening of Grapes, and is likewiſe uſeful for preſerving ſome of the leſs tender Exoticks. This indeed is ſomewhat vary'd according to the Humour of the Architect; but I think all thoſe Variations are nearly alike ſucceſsful.

Fig. I. is the Ground Plat of a Wall, built ſemicircular in Sweeps, each Sweep meaſuring eight Foot over A A A A; at the Back of this are two Ovens B B, which are each four Foot long, and three Foot broad, before they open

into

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Fig. I

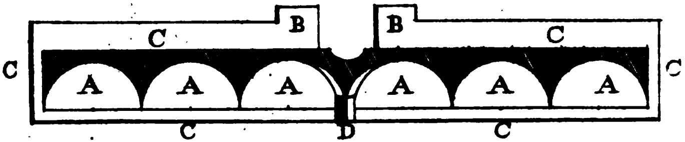


Fig. II.

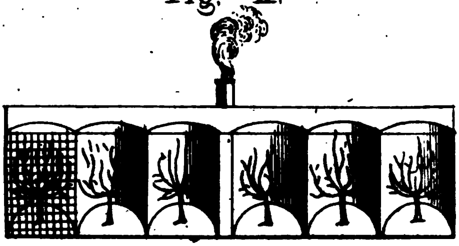


Fig. III.

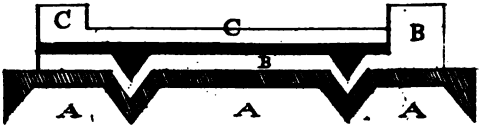
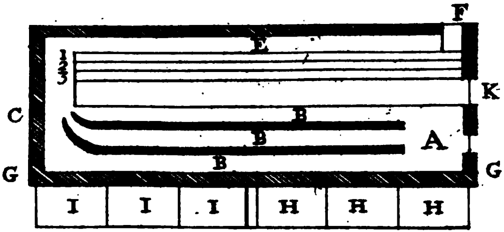


Fig. IV.



into the Flues CCC; the Flues at the back of the Wall are two Foot over, and as much in height: When they come to turn at the Corners they are reduc'd to a Foot wide, and riſe gently to convey the Draught of Smoak and Heat into the Flue C, which runs in the Front of the Niches, to be carry'd up the Chimney D. On the Top of this Front Flue are ſet the Pannels of Glaſs, which ſlope gently towards the Top of the Wall, where they meet a Coping; in the middle of every Nich a Vine ſhould be planted to be order'd, as I ſhall direct hereafter.

Fig. II. is the Upright of the ſame Wall, made to front the South Sun, which muſt be obſerv'd in all the other Walls built for this Purpoſe.

Fig. III. is the Ground Plat of a Wall built in Niches, in the Figure of half an Hexagon, each Nich eight Foot over AAAA. At the Back of the firſt Nich is an Oven or Fire-place three or four Foot ſquare, mark'd B. opening into a Flue B. of two Foot high, and a Foot and half over, reaching about two Foot and half high in the Wall: At the end of this Flue, where it enters the Chimney, about four Foot high of the Wall, is another Oven or Fire-place as large as the former, mark'd C, which opens into a Flue C, which is of the ſame Dimenſion of the Flue B, and runs over or above, and parallel with it.

This Front is glaz'd and planted like the former; the Niches of both are very proper for preſerving Cabbage-Lettuce in the Winter, and for young Salads; when the Fires begin to work, we may likewiſe put in Kidney-Beans, or ſome dwarf Peaſe; but I ſhall ſay more of theſe Things in another Place.

The next Stove or Conſervatory I ſhall take Notice of, is, that lately built by Mr. *Fairchild* at *Hoxton*, which is contriv'd for ſeveral good Uſes; and among others, I am of Opinion, it will bring the Ananas or Pine-Apple to bear Fruit; it is ten or twelve Foot wide from the Front Glaſſes to the Back Wall, and about forty Foot in Length; the front Frames to which the Glaſſes are hing'd, lie ſloping to the Back in ſuch a manner, as to drop about a Foot from an Upright, and the Roof or Cieling is higher in the Front about a Foot than it is at the back Wall; the Fire-place or Oven is about three Foot ſquare, mark'd A. Fig. IV. About a Foot high this Oven opens into three Flues mark'd BBB, running parallel to one another to C, the whole Length of the Houſe. At C they are all reſolv'd into one Flue, which in the Breadth of the Houſe to D riſes about three Foot higher, and then runs through a Flue E to the Chimney F, which gives a Draught to the whole, and a due Degree of Heat every where.

The Flue E is cover'd with ſquare Tiles, and is the uppermoſt of four Steps for the ſtanding of Pots: Between the Steps and the front Flues BBB is a Walk about three Foot wide, laid with Sand, which preſerves an Heat when the Fire is out.

The three Flues mark'd BBB are cover'd with ſquare Tiles, ſo diſpos'd, that a Bed of Sand of a Foot thick may lie upon them, into which ſome Pots with the moſt tender Plants are to be ſet; and ſuch a Sand Heat is accounted the moſt conſtant of any other, and may be regulated to any Degree of Heat, by adding or taking away of Sand.

Over the Fire-place A are three Pipes of Earth, about three Inches each in the Bore, which being heated, let into the Conſervatory an Air duly warm, and prevent the Damps and Stagnation of Air in the Houſe; and near the ſame Fire-place is plac'd an earthen Pipe, which conveys hot Air at Diſcretion into a Glaſs Frame mark'd HHHH by G, which is the Front Wall of the Conſervatory I have been deſcribing: This Front Wall is about two Foot high, upon which the great Glaſs Frames of the Conſervatory are reſted. This Wall mark'd GG is heated by the Fire in the Flues, and is contriv'd ſo as to make the Back of the Frames mark'd HH, communicate a gentle Warmth to them.

Againſt this Wall from G to G are to be planted ſome of the common *May* Cherries, which are ſlow Growers; and though the Wall may not be in the Clear above twenty Inches high from the Surface of the Bed, yet by leading the Shoots of ſuch Trees horizontally, the Trees will have full Room enough to grow and bear Fruit.

Upon the Bed, or in the Frame mark'd HHHH and III, may be planted Tulips, Narciſſus, Jonquils, Hyacinths, and towards the Front, which is the ſhalloweſt Part, Crocus's and Winter Aconites, to come in *December*. The Bed HH, &c. will bring its Flowers perhaps a Month ſooner than that mark'd III, proportionable to the Diſtance from the Fire-place. At the End of the Bed mark'd II, &c. is an earthen Pipe to let warm Air out of the Conſervatory into the little Frame, in caſe of extraordinary Froſt. The Figures, 1, 2, 3, are ſo many

Steps cover'd with ſquare Tiles without Flues under them, for the Pots of leſs tender exotick Plants; ſuch as Aloes, and others, which come from Places from twenty five to thirty five Degrees Latitude: But the Bed of Sand BBB will be hot enough for Plants from twenty five Degrees Latitude to the Line. The Door Way is at K, which opens from another Houſe into the Conſervatory; ſo that the Air which enters it upon opening the Door is never over cool, but is ſoften'd by the Warmth of the Fire-place. An Houſe of this kind may be divided by a Partition of Glaſs; for any thing leſs tranſparent would occaſion too great a Shade in both Diviſions, at the very Seaſons when the Sun's Preſence is moſt neceſſary.

The Uſe of the Partition is, that we may give Air to the Plants in one Diviſion, when we give none to the other; for the Plants in one ſhould be only ſuch as come from Places of Northern Latitude, and the others of South Latitude, which always have different Seaſons of Growth, as their natural Spring happens either in this or the other ſide the Line; and we ought to humour our Plants, and encourage their ſhooting, only at ſuch Times as it is natural for them to grow.

In ſome Stoves or Conſervatories, the Fire-place is a kind of Oven cover'd with Plates of Caſt-Iron, ſo that the Space of the Oven is about ten Foot in Length, and five in Breadth, and the Flue leading from it runs parallel with the Back of the Houſe, and then taking a Turn runs along the Front, juſt within the Glaſſes, ending in a Chimney that paſſes through the End-wall: This Flue is about fourteen Inches wide, and about eighteen in Depth, and is cover'd with Iron Plates of about two Foot in Length: Over the whole is laid a Covering of Sand of three or four Inches thick, and upon that a Pavement of ſquare Tiles. A Stove or Conſervatory thus prepar'd for giving Heat, may be about fifty Foot in Length, ten Foot wide, and ten Foot high in the back Wall from the Floor, and ſhould always have a Door or two opening into ſome other Houſe or Room to let in regulated or correcled Air, when the Heat is too intenſe; for Air may be too much rarified or refin'd by Heat for a Plant to live in, as it may be for an Animal to live in. For want of this Caution, I have known Plants have chang'd their healthful Verdure for a pale, ſickly Colour, which has ended in Death; and I am perſuaded, many a Man has grown ſickly for want of a due Freedom of breathing a well regulated Air, which I am ſatisfy'd may be render'd more or leſs agreeable to our Conſtitutions by Art.

The Fires to be us'd in theſe Stoves or Furnaces are either Wood, Coal, Turf, or Peat.

The firſt is ſudden and unconſtant, affording a much hotter Smoak than either of the others, and therefore is the beſt for warming the Walls, for forwarding of Grapes and other Fruits, where the Flues are of great Length.

The Coal yields a more laſting Heat, and affords a Smoak of a moderate Warmth, and may do well enough to warm Flues of a moderate Length: But Turf or Peat, ſuch as they burn in *Holland*, gives us a conſtant equal Heat, and yields no perceptible Smoak; it warms the Air in the Flues, and never diſturbs Plants; and where this is burnt, there muſt always be a much larger Oven to gather a Fund of Heat than when we burn Wood or Coal; and where ſuch Ovens or Fire-places are large, and cover'd with Iron, we may cover their Pavement or Floors with Sea Sand, four, five or ſix Inches thick, to regulate the Heat, and give an agreeable Dew to the Plants, in Imitation of what they would meet with Abroad.

I would not have my Readers miſtake this Dew, for a Damp which often riſes in green Houſes; that Damp proceeds from a moiſt ſtagnating Air. The Dew I ſpeak of is a gentle circulative Air, fill'd with vegetative Salts, ſuch as nouriſh Plants; but the Damp deſtroys them.

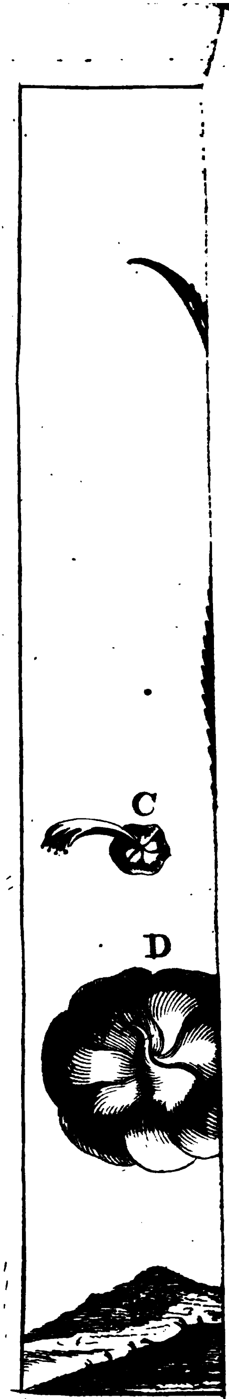
I have ſometimes thought, that if it was poſſible to have a Room built adjoining to a Glaſs-houſe, and to have its Windows face the South, that in ſuch a Place one might cultivate the moſt tender Plants without great Expence; for the continu'd Fire in the Glaſs-houſe might be contriv'd to keep the Air in the Room adjoining of a conſtant Warmth, equally the ſame Day and Night, and might alſo be of excellent Uſe in ſome chymical Preparations; for the Glaſs-houſe Fire burns for many Years without Intermiſſion. I offer this as a Hint worth improving by the Curious, who can have Opportunities of building a Laboratory or a Conſervatory for raiſing of Plants, to have a Communication with the Furnace of a Glaſs-houſe. I ſuppoſe by ſuch Means, as well as by the Stoves I have deſcrib'd, we might well enough ripen the *Ananas*, and raiſe Plants of Cucumbers and Melons at any Time in the Winter; and the *Bananas*, *Guavas*, and other *Weſt-Indian* Fruit, as well as the *Mango* of the *Eaſt-Indies*, would, doubtleſs, grow very well in ſuch warm Places. The late Dutcheſs of *Beaufort*, whoſe Memory will ever be grateful to the learned Part of the World, had ſeveral *Guavas* ripen'd at *Badminton*, even with leſs Heat than may be produc'd in the Stoves I have mention'd: And I can venture to affirm, it was from her Grace's excellent Judgment and Delight in Botanical Affairs, that we are chiefly oblig'd for the preſent Splendor, Ornament and Richneſs of our *Britiſh* Gardens; the great Advantages of Health and Peace of Mind which attended this kind of Science, ſoon made an Impreſſion upon the greateſt and moſt learned Men in the Nation. I am told, that ſoon after her Grace had ſet the Example, it became the Study of the learned Lord *Capel*, Sir *William Temple*, the late Biſhop of *London*, and Mr. *Evelin*, whoſe Vigilance and Induſtry in this philoſophical Diverſion brought Gardening to ſo great a Perfection, that it afterwards became not only a general Entertainment, but a publick Benefit. So much has the Study of this Art encreas'd ſince the *Revolution*, about which time theſe great Perſonages began it, that, as I am inform'd, there were then only ten thouſand Acres of Ground employ'd in Gardens for the Uſe of the *London* Markets, and now there are computed about one hundred and ten thouſand Acres cultivated for the ſame Purpoſe.

## CHAP. II.

## *An Account of the* Ananas, *or* Weſt-Indian Pine-Apple, *as it now flouriſhes in Sir* Matthew Decker's *Gardens at* Richmond *in* Surrey, *under the Care and Management of his ingenious Gardiner Mr.* Henry Telende.

THE Plant I am going to treat of is call'd the *Pine-Apple*, from the Reſemblance the Shape of its Fruit bears to the Cones or Apples of the *Pine-Tree*; but in nothing elſe but the Shape of the Fruit is the *Pine-Tree* and the *Ananas* alike: The Cones or Apples of the *Pine-Tree* Race, ſuch as *Firs*, *Cedars*, and even one may mention among them the *Cypreſs*, appear knotted or knob'd, like the Fruit of the Mulberry, but are much larger, as are the Fruit of the *Ananas*. The Cones I ſpeak of are of a woody Subſtance, whether on the *Pines*, *Pineaſters*, *Firs*, *Cedars*, or *Cypreſs*; but the Fruit of the *Ananas* is ſoft, tender and delicate, and excels all the Fruits in the World in Flavour and Richneſs of Taſte. The Cones of *Pines* and *Firs*, we muſt obſerve, are of different Shapes; ſome painted at the Top of a conick Figure, as the Apples or Cones of the *Scots Fir*; others of equal Bigneſs at Top and Bottom, like the Cones of the *Cedar* of

*Libanon*;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*Libanon*; and as theſe Cones vary in their Shape, ſo do we find the Fruit of the *Ananas* has different Figures. I find ſome of the *Ananas* with Fruit almoſt pointed on the Top, ſome broader on the Top; in a Word, the Figures or Forms of the *Ananas* Fruit are as various as the Apples or Cones of the *Fir* or *Pine* Tribes; which I have often obſerv'd in thoſe Fruit of the *Ananas* which have been brought us as Rarities from the *Weſt-Indies*.

But as the *Pines* and *Firs* make large Trees, ſo on the other hand our *Pine-Apple* is an herbaceous Plant, perennial, and bearing Leaves in the Manner and Form of an *Aloe*; they are indeed leſs juicy or ſucculent than thoſe of the *Aloe Succotrina*, but for the moſt part ſaw'd on the Edges like it: Some kinds of our *Pine-Apples* have Leaves above two Foot long, which grow more upright, others curl their Leaves backwards; and again, others are ſhort and ſlender. In the *Amſterdam* Gardens, I have obſerv'd about eight or ten ſorts which one might well enough diſtinguiſh by the Diverſity of their Leaves, but the Directors there had not the Art of ſhewing us their Diverſity of Fruit. One Fruit I confeſs I have ſeen there, but it was not larger than a common *Newington* Peach, and even that was eſteem'd a great Rarity.

From the Enquiry I made there, I found that ſome of the Plants were brought thither from the *Dutch* Factories in the *Eaſt-Indies*; but the greateſt Number of ſorts came from *Surinam* and *Curaſau*, belonging to the ſame Nation in the *Weſt-Indies*; from both which Places their whole Store of *Ananas* amounted five Years ago to about two hundred Plants, which by the

Skill of the Gardiner were in better Health than any I had ever ſeen in *England*, or any other Part of *Europe*; but the Art of bringing them to Fruit was not yet underſtood.

But Mr. *Le Cour* of *Leyden*, a Gentleman of extraordinary Skill in the Affair of Gardening, was not diſcourag'd by the ill Succeſs which we had all met with in the Education of this Plant; he reſolv'd to ſpare no Pains or Expence to bring this delicious Fruit to Perfection, if poſſible, and render it familiar to this Quarter of the Earth; he built Stoves of diverſe kinds, as I am informed, to a great Number, before he met with one that would anſwer his Deſign, and at length had the Happineſs of producing and ripening ſeveral hundred Fruit in a Year, and encreaſing the Plants to that Degree, that his Gardiner told me, he often bury'd or flung away ſome hundreds of them. By this Gentleman's Curioſity and generous Diſpoſition, the excellent Flavour and rich Qualities of this Fruit became known to moſt of the great Perſonages in and about his Nation: For, though every Year the Traders to thoſe Countries, where this Fruit is natural, bring home the *Pine-Apples* growing to be ripen'd here, yet that Fruit has not the high Flavour which is found in thoſe which are cut full ripe in the Place of their Education. I have ſeen ſome Fruit of Mr. *Le Cour*'s, which were about four Inches long, and far exceeded that which I obſerv'd in the *Amſterdam* Garden for Subſtance; and we are beholden to this Gentleman for ſending Plants to *England*, which now produce much larger Fruit than, as I am told, he has yet had in his own Garden.

It is not long ſince I was Eye-witneſs to ſeveral fruited *Pine-Apples* at Sir *Matthew Decker*'s at *Richmond*, about forty in Number, ſome ripening, and others in a promiſing Condition; the leaſt of which Fruit was above four Inches long, and ſome were as large as any I have ſeen brought from the *Weſt-Indies*. I meaſur'd one near ſeven Inches long in pure Fruit, and near thirteen Inches about; it was within two or three Days of being ripe, and was then yellow on the outſide, not unlike the Colour of Orpement. Among theſe curious Plants, I obſerv'd ſome Fruit which tended to Ripeneſs, that were more inclining to a purple Colour; and ſome Plants which were not yet ſet for Fruit were very remarkable in their Leaves, by being ſtriped with red; but every ſort I found were equally vigorous by the ſame Way of Management, and, in my Opinion, would have all been fruitful at one Time, if they had been of the ſame Age or Growth.

But not to dwell too long upon the Hiſtory of their coming among us, I proceed to give an Account of the Method now practis'd at Sir *Matthew Decker*'s at *Richmond*, for the Production of this excellent Fruit, which Mr. *Henry Telende*, his judicious Gardiner, has render'd ſo eaſy and intelligible, that I hope to ſee the *Ananas* flouriſh for the future in many of our *Engliſh* Gardens, to the Honour of the Artiſt, and the Satisfaction and Pleaſure of thoſe who can afford to eat them.

Mr. *Telende*'s Account of the Progreſs of the Plant from the firſt ſlipping or planting the Crown of the Fruit to the ripening Fruit, upon thoſe Suckers or Plants, is as follows.

In *July* and *Auguſt* we are to take off the Suckers, or young Shoots which ſprout from about the Root of the large Plants; and it is then neceſſary to prune off the wounded Parts at the Root End of the Suckers, till we make them ſmooth, and can perceive little Spots, which ſhew us the Rudiments of the Roots. Theſe young Plants ſo prepar'd, muſt be planted ſingly in ſuch Pots as are commonly us'd for *Auriculas*, which are about ſix Inches in Diameter on the Top, and ſomewhat more than four Inches wide at the Bottom; in the planting theſe, as well as the Crowns, we muſt preſs the Earth very cloſe and hard about them.

The Earth moſt proper for them, as I am inform'd, muſt be very finely ſifted, and rather light than ſtiff, ſuch as a ſandy Loam, of a black ſort; but if it is a mixt Soil, it ſhould be three or four Years old to be well incorporated.

This Time of Planting, and the Degree of Heat which Mr. *Telende* gives them, makes them ſtrike Root in a ſhort Time; and from what I can learn, ſome of the ſame Plants will prepare for Fruit the Spring following, eſpecially the Crowns of the Fruit, as in the Figure at A. The Time of their Bloſſom at *Richmond*, is commonly about *April*, when their Fruit appears about the Bigneſs of a Tennis-Ball; but this depends upon the Degree of Heat: The Flowers then ſhew themſelves ſingle on each Knot or Knob of the Fruit, about ten Parts in twelve of an Inch in Length, of a blue Colour; but it is obſervable, that thoſe which produce Fruit of the red kind, bear Flowers of a deeper blue than thoſe of the yellow ſort, which kind the Figure repreſents. Here it is obſervable, that from the firſt Appearance of the Fruit among the Leaves, to the Time of its bringing the Flowers, is about three Weeks; and then the Bloſſoms begin to open on the lower Ring of Knots or Knobs of the young Fruit, and gradually flower to the Top of it in about eight Days Time; but this Time of flowering is in proportion to the bigneſs of the Fruit. As it is longer or ſhorter, its Number of Circles or Knots will be more or leſs; for as the Fruit is longer, the Circles of Knobs are in greater Number; and as all Flowers have a certain Length of Time to bloſſom before they fade, ſo, conſequently, thoſe Fruit which have the largeſt Share of Circles, muſt hold longer in Bloſſom than the ſmall ones.

Mr. *Telende* reckons about five Months from the firſt Appearance of the Fruit to the Time of its full ripening; and obſerves, that when it tends to Maturity, it firſt changes from green to a grey or whitiſh Colour, and in about nine Days more it is fit to cut, having then gain'd its full Colour and Flavour: But I ſuppoſe it will not ripen in Winter ſo quickly from the Bloſſom, as it does with him, who has for a Year or two ripen'd them in the hotteſt Months. He tells me, that to judge rightly of the Ripeneſs of the Fruit, he firſt examines whether it is of the yellow or the red ſort, and if it is of a full Colour; alſo he obſerves, that when either ſort changes towards brown, it is paſt its Excellence, or is over ripe; but if it is in full Perfection, we may preſs in the Knots or Knobs of the Fruit gently with the Finger and Thumb, and they will return again: The yellow or red ſort muſt be bright in Colour to be good.

When the Fruit is ripe, the next Thing to be conſider'd is, how to bring it upon the Table, and manage it there; for this Fruit is of that Nature, that if it is not skilfully prepar'd after it is gather'd, it loſes half its Beauties.

It is commonly cut from the Plant with a long Stalk, ſo that it may be ſet upright in a Tube of Glaſs, to crown the Top of a Pyramid of Fruit; and whoſoever once taſtes of it, will undoubtedly allow, that it deſerves a Place above all other Fruits, as well for its beautiful Appearance, as for its delicious Flavour, which partakes of every Thing that can be found agreeable in all kinds of Fruit.

To prepare it for eating, hold the Fruit B in one Hand, while with the other you twiſt off the Crown of Leaves at the Top, which ſhould be preſently return'd to the Gardiner, to be clear'd of the Pulp which adheres to it, and planted for Increaſe. When the Crown of Leaves is off, begin at the Top to pare off the Rind of the Fruit; which muſt be ſo done, that none of the outſide Husks remain, which would be very troubleſome in eating. When this is done, cut it in Slices croſsways, to be laid ſingly upon a Plate; for if they are laid upon one another, it is hard to ſeparate them, the Fruit being of a gummy Nature, ſticking like Honey: Thus it is ready for eating without any Addition of Sugar, Wine, *&c.* to help its Flavour.

The next Thing to be mention'd, is Mr. *Telende*'s Method of making the hot Bed of Tanner's Bark, for the Education and Ripening this Fruit in the more gentle Seaſons of the Year; and this I ſhall ſet down exactly agreeable to his preſent Practice, which may ſerve as the Standard and Pattern to all the reſt; for whatever Invention comes into the World ſo perfect as this has done, I think ſhould not be vary'd in any Thing, leſt we ſpoil it, as too many have done already, by endeavouring to mend good Things.

*Firſt*, His *Frame* is made of whole Deal, cloſely jointed, after the manner of an hot Bed Frame, but its Proportion is different.

The Length of this Frame is eleven Foot, divided equally into four Lights or Pannels of clear Glaſs, in Panes of a moderate Size; the Wideneſs of the Frame is ſeven Foot and half; the Back is three Foot high, and the Front about ten Inches.

The Place or Pit for the hot Bed is ſomewhat more than five Foot deep in the Ground, made proportionable to the Length and Breadth of the Frame; the Sides of this Pit are lin'd with Brick-work, and the Bottom cover'd with Pebbles or Rubble Stones. This being prepar'd, he provides, about the middle of *February*, as much hot Dung or Horſe-Litter for the Foundation of this Bed as will raiſe it from the Pebbles about a Foot high, and then lays on the Tanners Bark as equally as poſſible, till the Caſe of Brick-work is fill'd, beating down the Tan gently with a Prong, or preſſing it down eaſily with a Board; for if it was to be trod, or beat too hard, the Tan would not heat in three Months. A Bed of this kind, he tells me, will take up three hundred Buſhels of Tan, or Tanners Bark; and if it be well made, will heat in about fifteen Days, provided the Frame and Glaſſes are ſet over it; but if it remains uncover'd, it will not come to its Heat in leſs than ſix Weeks Time.

When the Bed breathes a right Heat, which we are to judge of by a Thermometer, (as I ſhall mention by and by) we bring the Plants from the Stove to it, either to have their Pots quite plung'd into the Bark or Tan; or if upon opening the Holes for them, we find the Bark too hot, then ſet them in only half Way, laying a few Pebbles under the Bottom of each Pot, that the Water may paſs freely through them. We are alſo to take Care that we do not remove the Plants from the Stove to the Bed, in Froſt or Snow, for fear of injuring them: And we muſt as carefully examine our Bed from Time to Time, whether the Bark grows mouldy, muſty, or dry, which it will often do in the Summer; we muſt, in ſuch Caſe, water it, to recover its Heat.

The *Ananas* is no great Lover of Water; a very moderate Proportion only muſt be given at the Time it does not grow or ſhoot; but frequent and gentle Refreſhings are neceſſary when the Plant flouriſhes, and eſpecially during the Time of the Growth of the Fruit.

A Bed of Tanners Bark, prepar'd and manag'd according to theſe Directions, will maintain a conſtant Degree of Heat, ſufficient to give theſe Plants the utmoſt Vigour they require, from about the end of *February* to the end of *October* following; and then the Plants muſt be again remov'd into the Stove or Conſervatory.

During the Time the Plants are in this Bed, we are conſtantly to keep them cover'd with the Glaſſes, unleſs at Times of Watering, or ſuch neceſſary Works as are unavoidable. In the exceſſive Heats, indeed, the Glaſſes are tilted up at the Back of the Frame; and at ſuch Times when the Evenings are cool, the Bed muſt be carefully cover'd with ſubſtantial Mattreſſes of Straw. A Bed of this kind ſinks about a Foot, from the Time of making it to the end of Summer; which happens to be very convenient in this Affair, or elſe the Plants would grow too tall for the Frame, before the Time of houſing them.

The Water (Mr. *Telende* obſerves) which is neceſſary to refreſh or water theſe Plants, ſhould be kept in a Place where the Heat is equal to that of the hot Bed; or when they are in the Stove, he would have the Water ſet in the ſame Place, that they may not feel the leaſt Check by receiving Water, which is colder than the Air they breathe.

Thus we are, by the foregoing Remarks, inſtructed in the Method of preſerving and forwarding the *Pine-Apples*, from the middle of *February* to the end of *October*; and at the ſame Time we may judge how uſeful ſuch a Method of Culture would be to all ſuch Plants as are Natives of Climates as hot as *Jamaica*, the *Caribbee-Iſlands*, and two or three Degrees more *South*. The *Guava*, which comes from thence, a Fruit of delicate Flavour, will ripen here as well as the *Pine-Apple*; and there is no doubt, in Reaſon, but the *Bananas*, *Plantains*, and even the *Mango*, would proſper as well with us, ſince the ingenious Perſon who has brought the *Pine-Apples* to the ſame Perfection in *England* that they attain to in their own Country, has pointed to us in a Thermometer, the juſt Degree of Heat he conſtantly gave them; which Heat is then ſurely agreeable to that of the Country they came from, for otherwiſe they could not appear under his Care with ſo good an Aſpect as they now do, even as large, as fair, and as well taſted, as thoſe in the *Weſt-Indies*.

The Stove I mention in theſe Papers, with the Iron Plates over the Flues, is of that ſort he uſes; but for the greater Warmth, his is cover'd thick with Thatch on the Roof, and the Glaſſes well guarded with Shutters; and that the Fire under it may be conſtant, he burns only ſuch Turf as is commonly us'd in *Holland*, agreeable to Mr. *Le Cour*'s Method, whoſe great Skill firſt brought theſe Plants to be admir'd in the *European* Gardens.

But as I obſerv'd before, that the Degree of Heat neceſſary for this End, was pointed out to us by a Thermometer; ſo the ſame Degree of Heat muſt be as well obſerv'd in the hot Bed as in the Stove or Conſervatory; we find by the Conſequence, that it agrees with that of the Country where the *Pine-Apples* grow naturally: And by the ſame Thermometer we find, that the Heat of the Stoves and hot Beds may be rais'd much higher, even to be equal to the Heat under the Line or Equator; ſo that there is not any Plant upon Earth which may not be made to grow in *Britain* by ſuch Helps. The *Spice* Trees or Plants of the hotteſt Climes, whether the *Nutmeg* Tree, the *Cinnamon* Tree, the ſeveral ſorts of *Clove* Trees, the *Pepper* or the *Ginger*, will certainly proſper in ſuch Stoves, if we give them their exact Share of Heat.

The *Thermometer* us'd by Mr. *Telende*, has a Tube about twenty four Inches long, and the Diameter of it about one eighth Part of an Inch; in which he has remark'd, when the Spirit riſes to fifteen Inches, the Air is *cold* for his

Plants; at ſixteen Inches and half, *temperate*; at eighteen Inches, *warm Air*, which is his Standard for *Pine-Apple* Heat; at twenty Inches he marks *hot Air*; and one and twenty Inches and half, *ſultry:* But theſe Degrees are differently mark'd from the ſame Denominations in our common *Engliſh Thermometers*; his temperate is about our warm Air; his warm Air, our hot Air; and his hot Air is about the ſame with our ſultry.

I think there cannot be any Inſtrument more uſeful to Gardiners, who have the Management of Stoves or hot Beds, than *Thermometers*, regulated according to theſe Obſervations; and I have therefore directed ſome to be made for hot Beds as well as Stoves, by which we may at once be appriz'd of the Degree of Heat under the Line, and of the ſeveral Degrees diſtinctly mark'd for the natural Plants of every Climate, from the Line to the fifty ſecond Degree of Latitude.

In theſe *Thermometers* I ſhall mark the Names likewiſe of the principal Places, with their Degrees of Latitude and Summer Heat, whether they lie *North* or *South* of the Line, and alſo the different Times of Spring in the ſeveral Countries I ſhall mention, that ſo every Gardiner may underſtand when it is proper to apply his Heat in full Force, and what Degree of Heat he ought to uſe for the Welfare of any Plant he receives from any Part of the World: Theſe Inſtruments may be had of Mr. *John Fowler*, Mathematical Inſtrument maker, in *Swithin*'s-*Alley*, near the *Royal-Exchange*.

But becauſe every one of my Readers may not, perhaps, rightly underſtand the meaning of *Thermometer* or *Thermoſcope*, I ſhall here explain it: The *Thermometer* is an Inſtrument commonly made of Glaſs, fill'd with tinged Spirit of Wine, or ſome other proper Liquor, deſign'd to meaſure the Degree of Heat or Cold of any particular Place, or at the ſame Place at different Times and Seaſons.

At the Bottom of this Inſtrument is a pretty large Ball of Glaſs, fill'd with tinged Liquor; out of which riſes a Stem or Tube about three or four Foot perpendicular: To adjuſt the Degrees of which, the Ball may be placed in Water which is juſt beginning to freeze, and then noting the Height of the Spirit in the Stem, make any particular Mark againſt it, O for Example; and graduate it afterwards up and down for Heat and Cold: This is us'd with us, and ſhews the ſeveral Degrees of Heat or Cold in our Climate. But beſides this Inſtrument, it is neceſſary our Husbandmen and Gardiners ſhould be acquainted with ſome others, which will inform them of the Approach of wet or dry Weather, that their Affairs in the Fields and Gardens may be directed with ſome Certainty: The firſt is

The *Barometer* or *Baroſcope*, an Inſtrument for eſtimating the minute Variations of the Weight or Preſſure of the incumbent Air; it is a long Tube of Glaſs hermetically ſeal'd at one End, and being fill'd with Quick-ſilver, is inverted ſo as to have the open End of it immers'd or dip'd in ſtagnant Quick-ſilver, contain'd in a larger Glaſs under it; which larger Glaſs is expos'd to the Preſſure of the outward Air (after ſuch Immerſion) the Quick-ſilver in the Tube being ſuffer'd to run as much as it will into the ſtagnant Quick-ſilver, in which that Mouth or open End is immers'd, there is wont to remain a

Quantity of Quick-ſilver ſuſpended in the Tube, about twenty eight, twenty nine, or thirty Inches high, meaſuring from the Surface of the ſtagnant Quick-ſilver perpendicularly; but more or leſs within ſuch Limits, according as the Weight or Preſſure of the Air, incumbent on the external ſtagnant Quick-ſilver expos'd to it is more or leſs, leaving the upper Part of the Tube void, or at leaſt empty of common Air.

The next is the *Hygroſcope* or *Hygrometer*, an Inſtrument contriv'd to ſhew the Moiſture or Dryneſs of the Air, according as it abounds with moiſt or dry Vapours, and to meaſure and eſtimate the Quantity of ſuch Moiſture or Dryneſs. Of this and of the foregoing ſort there are many Varieties, which I ſhall mention and explain more fully hereafter, for the Advancement of Husbandry and Gardening; but I cannot conclude this Chapter, without obſerving, that if the Method of cultivating this Fruit or any others that are famous in the *Eaſt* or *Weſt-Indies* was rightly underſtood, we might be ſupplied with them in every Month of the Year; the *Guava* has been brought to Ripeneſs at *Chriſtmas*, by the Directions of the late excellent Dutcheſs of *Beaufort*.

What remains yet to be explain'd of Fig. V. is, that C repreſents the Bloſſom of the *Ananas* in its full Proportion upon the Knot which it grows upon, as it appears at the Time of Flowering.

D is one of the Knots of the Fruit in its full Bigneſs, when the Fruit is ripe and has been well manag'd.

CHAP.

## CHAP. III.

### *Obſervations on the Management of the Ananas or Pine-Apple, ſince Mr.* Telende's *Method was publiſh'd, and of the extraordinary Growth of the ſenſitive Plant, humble Plant, and others, from the warmer Parts of the* Weſt-Indies.

SINCE I publiſh'd Mr. *Telende's* Account of managing the Pine-Apples, I find that his extraordinary Succeſs has encourag'd a great many to undertake the Culture of that delicious Fruit; and though the Stoves which have been built by ſeveral Gentlemen for that Purpoſe, vary in ſome little Matters from the Stove at Sir *Matthew Decker's* at *Richmond*: Yet I do not find any of them that have been try'd, but what produce ſome extraordinary Effect or other, which leads us more into the Knowledge of the Humour of that curious Plant, as well as others which are Natives of the ſame Climate.

The new Frame at the Phyſick Garden at *Chelſea*, wherein only the Uſe of the Tanners Bark has been try'd this Summer 1723, by Mr. *Miller*, the curious Gardiner there, is an Inſtance, that it is not impoſſible to bring Plants of the

Latitude of eighteen or twenty Degrees to the utmoſt Perfection. About the beginning of *Auguſt*, I obſerv'd the ſenſitive Plants there about ſeven Foot high in Bloſſom, and the humble Plants were then preparing to put forth their Flowers. The Plants call'd the Flower Fence, ſo much eſteem'd in *Jamaica* for the Beauty of its Bloſſoms, and ſome others of the ſame Country, are ſaid to be in greater Strength than they were obſerv'd in *Jamaica*, conſidering the Time of their Growth from Seed, which were put in the Ground the Spring of the ſame Year; ſo that now I hope my former Conjectures and Deſigns will be rewarded, in ſeeing all the moſt excellent of the *Indian* Fruits brought to Perfection in *England*; for where ſuch is the Succeſs of a Frame deſign'd for Summer Uſe, I have no Room to deſpair.

But as for the Pine-Apples, which I deſign more particularly to treat of in this Place; we have Inſtances of their being brought to extraordinary Perfection at the Garden of the Right Honourable *Spencer Compton*, Eſq; Speaker of the Houſe of Commons, at *Chiſwick*; and at that curious Gentleman's, Mr. *John Warner*'s at *Rotherhith*, whom I had formerly Occaſion to mention on Account of his excellent Vineyard. There are ſeveral Stoves now built by curious Gentlemen on this Account; but as they have not yet been prov'd, I ſhall forbear to mention them particularly, only to take Notice, that that which was erected this Summer in the Gardens of *William Parker*, Eſq; near *Croydon* in *Surrey*, commands the Admiration of all the Judges that have ſeen it, for juſt Architecture and good Contrivance; the Deſign of it, beſides the keeping of tender Plants during the Rigour of our Winters, and the reſtoring of ſick Plants, which is common to moſt Stoves, is likewiſe to ripen ſome Fruits which have been ripen'd in other Stoves here, as well as in *Holland*, and to make new Experiments on others that have not been try'd; it is therefore endeavour'd to make this Stove capable of being heated differently in different Parts of it, in order to imitate in ſome ſort different Climates, which may be regulated according to different Heights of the Thermometer: For theſe Purpoſes it is ſo contriv'd, that in the Summer Time it may be uſeful by Means of Tanners Bark only, and in the Winter, both Tanners Bark and Fire may be us'd together, or Fire alone.

I obſerve in a Stove which Mr. *Fairchild* has built this Year in his Garden at *Hoxton* for Pine-Apples, and the moſt tender Plants; that he has rais'd his Fire Flues above the Surface of the Floor of the Stove, which carries very good Reaſon along with it; for firſt, as theſe Flues are not buried in the Earth, there is no Danger of their raiſing Damps in the Houſe; but, on the contrary, if any Damps would riſe there by any other Means, the dry Heat which will proceed from ſuch Flues, will rectify it, and render it fit for Plants, by quickening its Motion; for the more rarify'd is any Fluid, the quicker it is in its Motion; ſo the leſs rarify'd is ſo much ſlower, or nearer Stagnation, and may become ſo denſe by extream Cold, as to have no Motion at all, and become entirely fix'd; and the Juices of a Plant are always more or leſs fluid, as the Temper of the Air is more or leſs hot or cold, or dry or moiſt; the Particles of Air are quicker in their Motion than the Parts of Water; and yet the Air of our Atmoſphere is no more than the refin'd Parts of Water rarify'd by Heat, which, upon meeting with Cold, are condens'd in ſuch manner, as to be again reſolv'd into Water; and this Water again, by more extream Cold, is fix'd in Ice; but then from that fix'd State, it may again be reſolv'd into its firſt Condition by Heat: And this, I think, ſhould be particularly conſider'd by every Gardiner; for unleſs he can judge well of the State of Air, and how to correct or change it from one State to another, he can never work in this Way with any Certainty. And for the better pointing out to every one the exact Degree of Heat, neceſſary to be obſerv'd in a Stove for maintaining of the Pine-Apple, it is, that the Thermometer is ſo ſerviceable to us; but I do not mean thoſe which we meet with at every Place, for they are by no means to be truſted, unleſs they were all regulated by one Standard: For I have ſeen in one Place above forty Degrees Difference in ſome Thermometers with printed Scales, at the very ſame Time, ſo that no right Judgment could be made from any of them; nor, perhaps, ſhould we have rectify'd this Error, if it had not been for Mr. *Telende*'s Succeſs in raiſing the Pine-Apple, who mark'd his principal Point of Heat on a Thermometer which he had in his Stove, and by which he has regulated his Heat ever ſince; and from thence, and ſeveral new Obſervations made by the Curious, we are now furniſh'd with uſeful Thermometers of one Standard, carefully regulated by the ingenious Mr. *Fowler*, Mathematical Inſtrument Maker, beforemention'd. As the Degree of Heat by this Means may be always known, ſo we are next to obſerve what is chiefly the Caſe of the Bark Heat, *i. e.* the Heat occaſion'd by Tanners Bark, which has not been touch'd upon before in any of my Works.

In the Beds of Tanners Bark that are made for the Winter, I find that all the Heat they produce is confin'd within the Body of Bark; they yield no perceptible Warmth above their Surface, as the hot Beds do that are made of Horſe Dung; ſo that they are capable only of warming the Roots of Plants, whoſe Pots are plung'd into them; and therefore ſhould always have an artificial Heat by Fire, to warm the Air above, for elſe the tender Plants, that are plung'd in the Bark in the Winter Time, will rather miſcarry than come to good; for it is not to be ſuppos'd that the Growth of the Root can be advantagious to the Plant above Ground, when the cold Air keeps the Juices in the Veſſels of the Branches and Leaves in a frozen Poſture; ſo that they cannot move, though the Vegetation of the Root puſhes with never ſo great a Force; and it is certainly the Caſe where there is only Heat below, and none above; for Experience ſhews us, that Plants languiſh, if there is not Sun enough in the Winter to keep the Juices above Ground in Motion, ſo without the help of Fire for that Purpoſe, they will not thrive; but where theſe two concur (I mean the Heat below, and the Heat above) then Plants do not fail of Succeſs, even of ſuch as is very ſurprizing; witneſs what I have ſaid before of the *Weſt-Indian* Plants, under Mr. *Miller*'s Care at *Chelſea* Phyſick-Garden, which have been cultivated from the Spring to *September*, only by the Aſſiſtance of the Tanners Bark, and the Summer's Sun.

We are next to conſider in what other Circumſtances the hot Beds of Tanners Bark and Horſe Dung differ from one another. *Firſt*, From the Obſervations I have made ever ſince I began with Gardening, I never knew the greateſt Artiſt, in the Management of the hot Beds made with Horſe Dung, raiſe the Senſitive Plants above two Foot high in one Summer, nor any of the other *Weſt-Indian* Plants above a fourth Part ſo tall as they are at *Chelſea*, in the Beds of Tanners Bark; and this may be for two Reaſons, the one becauſe the Heat in the Bark is moderate, gentle, and laſts long; and the other, becauſe it is likely the Bark partaking of a large Share of Richneſs from one of the ſtrongeſt Vegetables, the Oak, and from one of the ſtrongeſt Animals, the Ox: I ſay theſe two powerful Ingredients fermenting gently in the Bark, may be a Means of nouriſhing the Plants, whoſe Roots are plung'd into it; for though the Roots are in the Pots, yet we are aſſur'd, that either ſuch Nouriſhment may be receiv'd by the Holes at the Bottom of the Pots, or elſe the Moiſture in the Body of the Bark may eaſily be imbib'd by the Earth, of which the Pot is compos'd, which every one knows is porous enough to receive any Humidity or Moiſture: If this be ſo, then the Roots may have as much Nouriſhment as they want; for as I ſaid before, there is nothing evaporates from this Body of Bark that is in the leaſt to be diſcover'd, ſo that the Roots have all the Benefit of this Richneſs to themſelves. Now, where ſo much Nouriſhment is receiv'd by the Roots or Mouths of a Body, it is neceſſary in Nature that there ſhould be ſome Diſcharge, either by the Growth of the Body, which is by explaining the Parts of a

Plant, or filling the Veſſels fuller of Juices; or elſe ſome other Way, which will happen as the Temper of the Air is, where the ſame Body reſides; ſo is it neceſſary to conſult the Quality of the Air, as well as the Diet of a Plant for its Welfare.

But it will be neceſſary that we conſider a little more of the Building: It is obſervable, that in the Frames which are now built for the tender *Weſt-Indian* Plants; there is near ten Times as much Air inclos'd in the Summer Time, where nothing but Bark is us'd, as I have mention'd in Mr. *Telende*'s Account, than is common in old ſort of Frames, and yet the Pine-Apples are in extraordinary Health. It therefore depends very much upon the Workman who builds the Frame or Stove, to underſtand what he is about; and particularly how to diſpoſe the Fire-place and Flues, to know how to provide the proper Regulators for the Heat, and the Quantity of Space ſuch a Place ſhould fill; beſides the Particular of diſpoſing the Glaſſes in the Front, which adds extreamly to the Welfare of a Plant; and this want of Knowledge being the frequent Occaſion of Miſcarriages, I think my ſelf oblig'd to inform the Curious, that Mr. *George Eden*, at the *Brick-layers Arms* in *Miles*'s-*Lane* near the *Monument*, is a Workman of extraordinary Capacity in theſe Affairs, having built ſeveral Stoves and Frames for this Uſe, after the moſt conſiderate Deſigns of the Curious; and indeed, there is ſo much Nicety required in the diſpoſing of the Fire Flues in the Walls and other Parts, that it is very neceſſary to employ an underſtanding Workman. As for the Deſign of a Stove of this Sort, I have prevail'd with Mr. *Rogers*, near *King Street*, *Cheapſide*,

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*ſide*,

MnoU

## *To Mr.* John Clark, *Merchant*, Oporto.

*London, Jan.* 28, 172⅔.

*SIR*,

THE worthy Gentleman your Father acquaints me, that you have a Deſign of propagating the Ananas or Pine-Apple in *Portugal*; the Method of doing which with us you will find in Mr. *Telende*'s Account, and which I ſuppoſe Mr. *Clark* has ſent you. But as your Climate has much the Advantage of ours in ripening Fruit of any ſort, ſo you muſt ſurely have extraordinary Succeſs, though there muſt be ſome Alteration in the Way of Management.

In the firſt Place, your Sun is ſo hot in the Summer Months, that the Glaſſes of your hot Bed Frames would ſcorch and burn your Plants, if they were to be cover'd in the hot Time of the Day; therefore I rather recommend Frames of Canvas to cover the Plants in the Time of the Sun's great Heats, and the Glaſſes only to be put over the Plants about an Hour before Sun ſet, to cover them a Nights, and keep a Body of warm Air in the Frame, till the Warmth of the following Day approaches; ſo likewiſe in your hot Weather, the Plants will require more frequent Waterings than with us, but not more at a Time than we would allow them in our Climate.

Your Seaſon of Spring, I ſuppoſe, is about ſix Weeks before us, and as much good Time for ripening of Fruit after us: But I would gladly know from you, how far I am right in my Conjectures concerning your Spring and Autumn Seaſons; and alſo when your great Rains fall, which will help to inform us how to cultivate Plants that come from the Country where you are.

We have got a Thermometer for you, whereby your Heats may be regulated; but it is rather to direct your artificial Heat in Winter than in Summer; for your Summer Heats will fling the Spirit ſo very high in the Glaſs, that it will be beyond Regulation; and as the Summer Sun is a natural Heat, ſo it needs not be any otherwiſe regarded, than by keeping it from ſcorching the Plants.

This Inſtrument ſhews the Degrees of Heat or warm Air neceſſary for Plants which grow near the Equinoctial Line, and from thence is mark'd upon the Scale the ſeveral Degrees or Proportions of warm Air requir'd for Plants which are Natives of Climates in ſeveral Degrees of Latitude, as far as 40, which is as much or more than we have Occaſion to uſe in or about the Latitude of *London*, which is 51 Deg. 30 Min. for we find by Experience, that the Plants of *Virginia*, whoſe Latitude in the moſt Northern Point is about 38 Degrees, will live abroad, and defend themſelves againſt the Rigour of our Froſts. So likewiſe we have many Examples of Plants from the North of *Carolina*, whoſe Latitude is about 34 Degrees, that will generally bear our Winters without Shelter: But from about 34 Degrees, to about 26 or 27 Degrees, we muſt ſhelter them every Winter in a common Green-houſe, ſo that no Froſt may invade them.

After this, as we come nearer to the Tropicks, or the Line, we muſt be diligent to give the Plants the ſeveral Degrees of Watering natural to the reſpective Climates; and for that end we ſhould learn when the Seaſons are that the Rains fall in Countries of different Latitudes. Nor ſhould we too inadvertently attempt to harden Plants, but rather ſeek to increaſe their Strength, by making them grow and increaſe in their Bodies; for in the common Way of making them hardy, though they yet live with us, they loſe their natural Intent of bearing Fruit, and ſo become uſeleſs.

In the Culture of Plants therefore, it is not enough only to give them ſuch a Share of Warmth or Shelter, as will barely keep them alive; but we muſt give them ſuch Heat at proper Seaſons, as may equal, if poſſible, that of their native Country, which in a particular manner ſhould be regarded in the Culture of ſuch Plants as grow between the Tropicks; but that has remain'd an Uncertainty, till Mr. *Telende* luckily diſcover'd the Degree of warm Air in *Nevis* and *St. Chriſtopher*'s, where the Pine-Apples chiefly delight themſelves; and as they ſucceed under the Influence of the Heat he gives them, ſo we may be ſure, every other Plant growing in the ſame Degree of Latitude may be made to proſper with us, whether they come from the North or South Side of the Line.

It is neceſſary likewiſe to obſerve the Courſe of the Sun, in the Culture of Plants which come from any of thoſe Latitudes mark'd in the Thermometer, and apply to them the ſtrongeſt

Heats of their reſpective Countries, at the Time when the Sun is neareſt thoſe Places which they were brought from; and when we receive Plants from Countries where the Sun paſſes over twice in a Year, our artificial Heats ſhould at ſuch Times be chiefly ſupported.

Thus, Sir, I have mention'd what I think will be neceſſary for your Uſe at this Time, with regard to the Thermometer; but when I know the State of your Climate, can ſay more: In the mean while, though I am unknown to your Perſon, I am no Stranger to your Merits, and conclude,

*Your moſt humble Servant,*

*to command,*

R. BRADLEY.

## *Mr.* Clark *of* Oporto*'s Anſwer to the foregoing Letter.*

*To Mr.* Bradley, *F. R. S.* London.

*Oporto, April* 16, 1723.

*SIR,*

I Am extreamly oblig'd to you for your Favour of the 28*th* of *January*, and the Advice you give me concerning the Culture of the Ananas: I have had much Trouble to preſerve the two Plants my Father ſent me, through the little Care Maſters of Ships generally take in bringing Plants; and beſides, I have not had the Opportunity to mind their Propagation ſo well as to expect Fruit from them this Seaſon, but am fully bent upon all Diligence for to have it the next.

The Ananas is a Plant very common in the *Portugueze* Colonies in *Brazil*, ſo that few Sea-faring Perſons and Factors who have been there, are unacquainted with it.

Doubtleſs, the Thermometer you have contriv'd, to ſhew the proper Degrees of Heat natural to each Plant, will render their Culture prodigiouſly eaſy; I impatiently expect that which you have been pleas'd to finiſh me, for which I give you my hearty Thanks.

We are ſituated here within a League of the Sea, in a hilly, rocky Country; few Grounds are improv'd, but what are humid, or elſe have little Springs of Water near them, to moiſten in Summer Time. In our Wine Country, which is about ſixty Miles diſtant, Eaſtward, the Heat and Cold is more exceſſive than with us, by reaſon the Mountains are much higher and ſteeper. The Summer Weſtern Sea-Breezes do not reach that Country; and the Reverberation of the Sun from thoſe rocky Hills heat the Air to ſuch a Degree, that the Night in the Summer Seaſon is as hot as the Day.

We have our Spring ſooner about a Month than in your Climate, and the ſame Continuance of good Weather longer in Autumn. The Winter Air is very ſharp and piercing to Plants, though we feel little or no cold Weather; but I ſuppoſe the Reaſon is, that our Air is more ſubtle, and not ſo condens'd as yours is. I have known in Winter a continual Rain for ſix

Weeks, but ſome Years we eſcape without any. Our worſt Months are from the middle of *December* to the middle of *February*; for in the latter End we reckon Spring begins.

I obſerv'd, in ſome of your Writings, the Experiment of cutting or laying the Branches of a Tree in the Ground, and the next Seaſon raiſing the Roots into the Air, which will do the Office of the former Branches. It is the Practice here to do ſo in the Increaſe of the Fig-tree, becauſe they find it very tedious before it will bear from Suckers. Their Method is laying the top Boughs of any Branch into the Ground, and in the new Seaſon ſawing off the Branch, and ſtaking it as upright as poſſible; which top Stump in the Air will ſhoot vigorouſly, and quickly give Fruit: I am told, that the *China* Orange may be us'd ſo; and then, they ſay, the Fruit of the new made Tree is without Kernels.

A Fryar has promis'd to graff me this Seaſon the Carnation upon Fennel; he ſays, the Flower will be entirely green, as well as the Plant; and, he aſſures me, the Colour will keep two or three Years the ſame, and after that, changes to the Colours common to that Flower. He adds, that in this Country the beſt Stock for graffing Stone Fruit upon, is the Peach, for its Flavour is communicated into the Fruit of the Graff; as likewiſe, if you graff a Peach upon a Mulberry, the Fruit will have the purple Dye to the Stone, and the pleaſant acid Flavour. If I can make any Obſervations here worth your Notice, I ſhall communicate them to you with Pleaſure: The Natives are the leaſt curious in Gardening of any Nation in *Europe*; any Thing uncommon is in the Convents, where they ſeldom part with it. I am,

*Sir,*

*Your moſt humble Servant,*

JOHN CLARK.

## CHAP. IV.

### *Concerning Quickſilver found in* England, *and of the Barometer and Thermometer, in a Letter to* W. Waller, *Eſq; particularly, how far thoſe Inſtruments are neceſſary in the Culture of Exotick Plants.*

*SIR,*

‘ I Had the Favour of your Letter
‘ concerning Minerals and ſubterraneous
‘ Riches, which I am very ſenſible
‘ abound in our *Britiſh* Soil,
‘ and ſuch as are already diſcover'd
‘ and underſtood, bring great Profit to the Nation;
‘ but I am aſſur'd, there are many others
‘ that are daily before us, which are at preſent
‘ uſeleſs for want of the right Knowledge of
‘ their

'their Virtues. You are certainly very juſt in your Obſervation, that we ought not to neglect the Study of theſe Things; for every Diſcovery in this Way is a publick Benefit, and gains Riches to a Nation, not only from its intrinſick Value, but by employing many Hands to work it.

'The clay Grounds which abound in *Middleſex*, eſpecially near *London*, is an Inſtance, that Things of the moſt trifling Appearance may be render'd vaſtly profitable to the Owner, the Undertaker, and the Publick, in the making of Bricks with this ſort of Earth; and the Landlords receive large Premiums for the Earth upon every Acre, ſome five, ſome ſix, or ſome ten Pounds for every Acre, beſides as much Rent yearly as they might let their Land for, if it was fit for Garden Ground.

'The Undertaker of a Brick-kiln, beſides the Charge of the Premium, Rent, and keeping Teams of Horſes, may perhaps be at the Expence of about five or ſix Shillings *per* thouſand for making and burning; and theſe Bricks, if they are only Place Bricks, may be ſold at *London* for about fourteen, fifteen or ſixteen Shillings a thouſand; or if they are good Stock Bricks, I ſuppoſe he may ſell them for about twenty Shillings *per* thouſand, in Proportion to his Expence in making and burning them.

'The Advantage to the Publick is from the Number of People employ'd in digging and preparing the Earth, in making and modelling the Bricks, in employing Coal to burn them, in loading and unloading them, and carrying 'them from Place to Place; in employing thoſe 'who burn and prepare the Lime, and bring 'the Sand for Mortar, thoſe who make the 'Mortar, and thoſe who lay the Bricks for 'building; ſo that perhaps one thouſand of 'Bricks, from the making to the laying, may 'employ twelve or fourteen Hands. But in ſe'veral Countries, ſeveral ſorts of Earth are 'us'd for this Purpoſe: Some People are lucky 'enough to find a Vein of Earth, which will 'do for this Uſe ſimply, or without Mixture; 'others are oblig'd to mix two or three Sorts 'together, to make a Body fit for Brick Earth; 'and ſome near the Sea uſe Sea Ouze to make 'ſuch as are call'd *Flanders* Bricks.

'In *Devonſhire*, and ſome other Countries in '*England*, there is a ſort of red Earth which 'the People uſe for building Walls, which they 'call Cob; their Garden Walls and Fences a'bout their Houſes are generally made with it; 'they prepare it firſt like a thick Mud, mixing 'chop'd Straw with it, and raiſe their Walls 'by laying one Shovel full upon another, and 'ſmoothing over the Outſide; this Mixture will 'harden in a few Days, and the Walls built 'with it will out-laſt ſome ſort of Stone, as I 'have obſerv'd in Buildings of both ſorts, which 'were erected at the ſame time.

'When I was laſt at *Exeter*, a curious Cler'gyman told me of an Obſervation of his ſome 'Years ſince, in and about that City, which I 'think may prove of great Advantage to the 'Publick, if it was judiciouſly ſought into.

'This Gentleman tells me, that towards the 'Eaſt-End of the City, when the People dig 'deep enough for the Foundation of an Houſe, ‘it is common to find Quickſilver diſpers'd amongſt the Earth; inſomuch, that in about an Hour or two he has gather'd as much as fill'd a Thumb Bottle, as he call'd it, or more than the Quantity of two Ounces; and at the ſame time mention'd ſome Perſons now living, who had done the ſame about the ſame Place; ſo that I wonder it has not been more generally taken Notice of.

‘When I conſider the Subtilty of this Mineral, how finely its Parts are capable of being divided and ſeparated by the moſt gentle Warmth, even ſo as from leſs than a ſingle Grain evaporated by Fire, to ſuffocate four Perſons in a large Room; and that, if we put an Ounce or two of it into an hundred Bottles of Water one after the other, and give the Water and Quickſilver together a gentle Heat, every Bottle of Water by this means will gain that uſeful Quality from the Quickſilver, which makes it ſovereign in ſcrophulous Diſtempers. I ſay, this declares ſufficiently the Subtilty of its Parts; for in theſe many Times of infuſing the ſame Ounce of Quickſilver, we do not find at the laſt it has loſt of its Weight, although it is plain it has alter'd the Quality of the ſeveral Waters it has been infus'd in, and therefore muſt have partaken of its Parts.

‘Now, from theſe and many more Obſervations of the like Nature, I am at preſent of Opinion, that the Quickſilver which is found in *Devonſhire* near the Surface, in ſmall Particles or Drops, may proceed from a great Body of it lying deep in the Ground; and that the ſmall Particles diſcover'd, as I have related, are

‘ Aſſemblages of the ſubtle Effluvia, which are continually riſing from the Body or Fund below; for in Quickſilver we find a natural Tendency of each Part to the other. For Example, if there were fifty of the leaſt Drops we can imagine to be laid ſeparate upon a ſmooth level Body of an Inch ſquare, they will in a little Time unite or run all into one Maſs. It is therefore worth the Enquiry of thoſe who live about *Exeter*, to examine further into this Affair: The Clergyman who has the Care of the Pariſh of *Mamhead*, about ſix Miles from *Exeter*, can inform them of the Place where it was uſually gather'd. If there ſhould be a large Fund or Body of Quickſilver found in this Place, as there is good Reaſon to believe, the Uſe it may be of to the Nation is too well known to need any Explanation, unleſs in one Particular, which is ſo new, that I believe few People have yet heard of it; which is a Method for raiſing Water with Quickſilver, lately invented by Mr. *Hoskins*, a Gentleman of great Ingenuity and uſeful Knowledge, as our Nation already has experienced in ſeveral Inſtances.

‘ The Quantity of Quickſilver us'd for Barometers at preſent is but trifling; but ſhould we once be happy enough to ſee our Husbandmen and Gardiners come to underſtand this Inſtrument rightly, I am perſuaded few would be without it, and the Expence of Quickſilver would be greater. It is my Opinion, ſuch Indexes of Weather may not only contribute to help us in our Culture of Plants, but ſave many a good Crop, which is often loſt for want of judging rightly of the Weather.

‘ The Barometers and Thermometers, which ‘ I have lately obſerv'd at Mr. *Patrick*'s in the ‘ *Old-Baily*, have many Excellencies which are ‘ not common in ſome others I have ſeen, and ‘ therefore I ſhall ſend you their Deſcription and ‘ Uſe, in Mr. *Patrick*'s own Words.

‘ There is lately invented a curious pendent ‘ Barometer, wherein the Quickſilver riſes and ‘ falls perpendicularly, in ſome twelve, fifteen, ‘ twenty, twenty five or thirty Inches, inſtead ‘ of three in the common ones.

‘ It diſcovers the moſt minute and ſmalleſt ‘ Alterations in the Air, ſhewing the Weather ‘ much ſooner, and more certainly than any ‘ common Barometer; and this is an open Tube ‘ or Pipe without a Ciſtern of Quickſilver at ‘ the Bottom, wherein the Expanſion and Con‘tradiction of the Column of Mercury is near ‘ three Inches, and this in the moſt equal Tube ‘ yet met with.

‘ By this the Inclination of the Air is to be ‘ known at Pleaſure; for by moving it a little ‘ up and down with the Hand, you ſhall im‘mediately behold the Quickſilver riſe and fall ‘ very conſiderably; which, if it riſe, it will ‘ be fair Weather; if it fall, then expect Rain.

‘ Alſo an excellent diagonal Barometer, where‘in the Mercury moves in an oblique Tube, for ‘ the Space of thirty Inches inſtead of three in ‘ the common one; and is ſo nice, as to divide ‘ an Inch into an hundred Parts, for the ſame ‘ Purpoſes as the former. It has a Thermome‘ter on the ſame Frame, ſhewing ninety De‘grees of Variation between the greateſt Heat ‘ and the greateſt Cold.

‘ Theſe Barometers will be of particular Uſe ‘ to Farmers, in aſſiſting them in electing Times ‘ when to ſow and reap: All theſe are ſo con‘triv'd, that they may be ſafely ſent to any Place ‘ compleatly fix'd; and Inſtructions are given ‘ with every Glaſs, to explain their Uſes to the ‘ meaneſt Capacity.

‘ His Rules and Obſervations for know‘ing the Weather, by the various riſing and ‘ falling of the Weather-glaſs or *Barometer*, are ‘ theſe:

‘ 1. That the leaſt Alterations in the Riſe ‘ and Fall of the Mercury in the Tube, ſhould ‘ be regarded in order for the right finding the ‘ Weather by it.

‘ 2. The Riſing of the Mercury preſages fair ‘ Weather, as the Falling indicates the con‘trary, *viz.* Rain, Snow, high Winds and ‘ Storms.

‘ 3. In Summer, if the Quickſilver be up a‘bout Fair, and the Weather very hot for four ‘ or five Days, then expect black Clouds to riſe, ‘ and a briſk Gale with Thunder, and a Shower ‘ or two, and ſo go off.

‘ 4. In Winter, the Riſing preſages Froſt; ‘ and in froſty Weather, if the Mercury falls ‘ three or four Diviſions, there will certainly ‘ follow a Thaw; but in a continued Froſt, ‘ if the Mercury riſes, it will certainly ſnow.

‘ 5. When foul Weather happens ſoon after ‘ the falling of the Mercury or Quickſilver, ex‘pect but little of it, and judge the ſame ſoon ‘ when the Weather proves fair, ſhortly after ‘ the Mercury has riſen.

‘ 6. In foul Weather when the Mercury ri‘ſes much, and ſo continues two or three Days 'before the foul Weather is over, then expect a 'Continuance of fair Weather to follow.

'7. In fair Weather when the Mercury falls 'much, and continues for two or three Days 'before the Rain comes, then expect a great 'deal of Wet, and high Winds.

'8. The unſettled Motion of the Mercury 'denotes uncertain and changeable Weather, as 'Sun-ſhine, ſome black and white Clouds, with 'frequent Showers.

'9. If the Mercury be up at Fair and don't 'fall, and it happen to rain, then expect but 'little of it.

'10. If the Mercury be down at Rain, and 'don't riſe, and the Weather proves fair, then 'expect it not to continue.

'11. We are not ſtrictly to mind the Words 'that are engraven on the Plates, though for 'the moſt part the Weather will agree with 'them; for if the Mercury ſtood at much Rain, 'and do riſe up to Changeable, it preſages fair 'Weather, altho' not to continue ſo long as it 'would have done if the Mercury were higher; 'and ſo on the contrary.

'Theſe Directions ſerve for moſt Weather-'Glaſſes or Barometers now in Uſe, as well for 'ſuch where the Mercury or Quickſilver does 'not move more than three Inches, as thoſe 'where the Motion of the Mercury is thirty 'Inches. So far the curious Mr. *Patrick*.

'But to know how to judge ſtill with great-'er Certainty of the Alteration of the Wea-'ther, we may accompany one of the forego-'ing Inſtruments with an Hygrometer, which 'will forewarn us of wet and dry Weather, by 'pointing to us the Degrees of Moiſture or

Dryneſs in the Air, and how one or the other increaſes. The beſt Inſtrument I know of this kind is made of a Cat-gut, about a Yard in Length ſuſpended, having a Plummet or Piece of Lead, with an Index or Pointer hanging at the lower End, by which means the Cat-gut will twiſt or untwiſt as the Air dries or moiſtens, and ſhorten or lengthen ſo as to raiſe and ſink the Plummet with its Index, which will mark the Degrees we ſeek after: The Weight of my Lead is about two Ounces; but ſome who uſe fine Whipcord inſtead of Cat-gut, put a greater Weight of Lead.

‘ The Twiſting or Untwiſting of either the Cat-gut or Cord occaſions the Lead with the Index to turn round, as well as riſe and fall; ſo that I chuſe to mark my Degrees upon an open Skrew of Braſs, within which the Plummet and Index has its Motion. There may be many Devices for the Figure of the Weight or Plummet, as a *Cupid* with an Arrow in his Hand to point at the Degrees; or a Bird with Wings extended for Flight, with ſome Bough or Branch in his Mouth to ſerve for an Index: Theſe Figures may be gilded for Ornament ſake; others may be contriv'd as Fancy directs.

‘ When we are provided with theſe two Inſtruments, we ſhould compare the Motions of one with the other, in order to judge what Proportion the Riſe or Fall of the Quickſilver in the *Barometer* bears to the Twiſting of the Cord or Cat-gut, whoſe Degrees of Motion we may obſerve by the Index or Pointer of the *Hygrometer*; and at the ſame time compare both theſe with the Riſings and Fallings of

‘ the Spirit in the *Thermometer*, to know what ‘ Degree of Heat or Cold attends every different ‘ Change of Weather.

‘ The *Thermometer*, ſays Mr. *Patrick*, ſhews, ‘ by Inſpection, the preſent Condition of the ‘ Air, whether it be hot or cold; which Day ‘ in Summer is hotteſt, and in Winter coldeſt, ‘ or any Part of the Day; and from thence many ‘ uſeful Experiments have and may be made, ‘ *viz.* diſcovering the hotteſt or coldeſt Bath, or ‘ the Degrees thereof. So likewiſe of any Spring, ‘ how much one exceeds the other in Coldneſs.

‘ To the *Thermometer*, Mr. *Patrick* ſpeaks of, ‘ is fix'd a Scale of ninety Degrees number'd ‘ from the Top downwards, with a moveable ‘ Index joining to it, which is deſign'd to in‘form the curious Obſerver how the Heat and ‘ Cold changes from the Time he laſt beheld it, ‘ according to the various Degrees of Heat and ‘ Cold in all Latitudes of the World; as by the ‘ Trial of two *Thermometers* which have been ‘ regulated abroad, one by the great Dr. *Halley*, ‘ Secretary to the Royal-Society, in his late ‘ *Southern* Voyage, and the other by Captain ‘ *William Johnſon*, in his Whale-fiſhing Voy‘age to *Greenland*; the firſt has a Degree of ‘ Heat under the Line, and the Degree of Cold ‘ in 88 Degrees North Latitude, as Mr. *Patrick* ‘ informs me.

‘ When I can perſuade my Brother Planters ‘ to uſe theſe Inſtruments, I hope they will, in ‘ their ſeveral Stations in and about *Britain*, ‘ make their Remarks upon their ſeveral Moti‘ons, and fixing *London* as the Standard, com‘municate what Remarks they make in the ſe-

'veral Countries they reſide in; for by com-
'paring one with another, we may come near
'a Certainty what Plants will grow and pro-
'ſper in every Part of the Kingdom; and from
'many Obſervations of that Nature draw ſuch
'Concluſions as may be of univerſal Benefit.
'I am,

*SIR,*

*Yours*, &c.

R. BRADLEY.

As I have taken Occaſion to publiſh this Letter, I think it not amiſs to preſcribe a Method for ſome of my Readers to follow, in the Accounts or Obſervations they make on the Alterations of the Inſtruments named in it, *viz.* the *Barometer*, *Hygrometer* and *Thermometer*, the meaning of which Terms I have explain'd before in this Work.

The Method I ſhall propoſe, is that which is now practis'd by the Order and Direction of the Honourable *Samuel Molyneux*, Eſq; to whom the learned Part of the World is oblig'd for many grand Diſcoveries.

To give an Example of this Method according to the Directions preſcrib'd by the aforeſaid curious Gentleman, we are to provide a Book for twelve Months Remarks, which ſhould be made ſix times every Day. At which Times is obſerv'd,

1*ſt*, The riſing or falling of the Quickſilver in the *Barometer*.

2*dly*, The Alteration of the *Hygrometer*.

3*dly*, The Riſe or Fall of the Spirits in the *Thermometer*.

4*thly*, The Point of the Compaſs from whence the Wind blows, and as near as can be gueſs'd with what Strength. And

5*thly*, Whether Rain, Snow, Hail, &c. and what Quantity fallen.

Each Leaf of the Book deſign'd for this Uſe muſt be divided into ſeveral Columns; the firſt for the Day of the Month and of the Week: The ſecond, for the Number of Inches and Parts of an Inch in the Tube of the *Barometer*, where the Quickſilver ſtands at the time of Obſervation. The third, to mark the Degrees pointed at by the Index of the *Hygrometer* at the ſame Time. The fourth, to ſhew the Number of Inches and its Parts in the *Thermometer*, where the Spirit ſtands at the Time of obſerving. The fifth, to mark the Winds, and their Strength. And the ſixth, for the Quantity of Rain falling, and Diſpoſition of the Clouds and Air. But I ſhall give an Example of five or ſix Days in the Month of *June* 1721, taken from the Book I mention, that whoever will be curious in this Way, may keep their Weather Books after the ſame manner, to be more eaſily compared, and the Difference of Weather or Strength of Heat and Cold in ſeveral Parts of *Britain* may be known. But in this Caſe we muſt remember what I have ſaid before, that all the *Thermometers* ſhould be firſt regulated by one Standard.

*N. B.* In the Column of the *Barometer*, I. ſtands for Inches, and P. for the Number of Parts of an Inch.

*Friday,*

| *Friday,* JUNE 2. 1721. | *Barometer.* | | *Hygrometer,* with its Diviſion and Parts. | *Thermometer.* | *Wind.* | *Weather.* |
|---|---|---|---|---|---|---|
| | I. | P. | | | | |
| 9 *Morning,* | 29 | 98 | 240<br>15 | 30 | Eaſt, brisk Gale. | Cloudy. |
| *Noon,* | 29 | 98 | 260<br>20 | 28 | Eaſt, *Ditto.* | *Ditto.* |
| 3 *Afternoon,* | 29 | 98 | 280<br>20 | 28 | *Ditto.* | *Ditto.* |
| 6 *Afternoon,* | 29 | 98 | 300<br>20 | 27 | *Ditto.* | *Ditto.* |
| 9 *Afternoon,* | 29 | 98 | 315<br>15 | 28 | *Ditto.* | *Ditto.* |
| *Midnight.* | 29 | 98 | 320<br>5 | 28 | *Ditto.* | *Ditto.* |

*Saturday*

| *Saturday* JUNE 3. 1721. | *Barometer.* | | *Hygrometer*, with its Diviſion and Parts. | *Thermometer.* | *Wind.* | *Weather.* |
|---|---|---|---|---|---|---|
| | I. | P. | | | | |
| 9 *Morning.* | 29 | 83 | 360<br>10 | 27 | Eaſt about Calm. | Cloudy. |
| *Noon,* | 29 | 80 | 80<br>40 | 26 | South Calm. | Rainy. |
| 3 *Afternoon,* | 29 | 78 | 170<br>30 | 26 | South Calm. | Rainy. |
| 6 *Afternoon,* | 29 | 74 | 80<br>90 | 27 | Eaſt Calm. | Rainy. |
| 9 *Afternoon,* | 29 | 73 | 130<br>50 | 27 | Eaſt Calm. | Cloudy. |
| *Midnight.* | 29 | 71 | 100<br>30 | 27 | Eaſt Calm. | Cloudy. |

| *Sunday* JUNE 4. 1721. | *Barometer.* | | *Hygrometer*, with its Diviſion and Parts. | *Thermometer.* | *Wind.* | *Weather.* |
|---|---|---|---|---|---|---|
| | I. | P. | | | | |
| 9 *Morning.* | 29 | 75 | 40<br>60 | 27 | Weſt<br>Calm. | Cloudy. |
| *Noon,* | 29 | 73 | 330<br>70 | 26 | *Ditto.* | *Ditto.* |
| 3 *Afternoon,* | 29 | 71 | 280<br>50 | 26 | *Ditto.* | Rainy. |
| 6 *Afternoon.* | 29 | 69 | 290<br>10 | 26 | *Ditto.* | *Ditto.* |
| 9 *Afternoon,* | 29 | 68 | 310<br>20 | 26 | *Ditto.* | *Ditto.* |
| *Midnight.* | 29 | 68 | 310 | 27 | *Ditto.* | Cloudy. |

| *Monday,* JUNE 5. 1721. | *Barometer.* | | Hygrometer, with its Diviſions and Parts. | *Thermometer.* | *Wind.* | *Weather.* |
|---|---|---|---|---|---|---|
| | I. | P. | | | | |
| 9 *Morning,* | 29 | 65 | 270<br>40 | 28 | Weſt Calm. | Hazy. |
| *Noon,* | 29 | 63 | 180<br>90 | 29 | Weſt brisk Gale. | Clear Sky. |
| 3 *Afternoon,* | 29 | 62 | 110<br>70 | 29 | *Ditto.* | Hazy. |
| 6 *Afternoon,* | 29 | 55 | 310<br>100 | 28 | *Ditto.* | Cloudy. |
| 9 *Afternoon,* | 29 | 51 | 350<br>50 | 29 | Weſt Calm. | Rainy. |
| *Midnight.* | 29 | 47 | 30<br>40 | 31 | *Ditto.* | *Ditto.* |

*Tueſday*

| *Tueſday,* JUNE 6. 1721. | *Barometer.* |  | *Hygrometer,* with its Diviſions and Parts. | *Thermometer.* | *Wind.* | *Weather.* |
|---|---|---|---|---|---|---|
|  | I. | P. |  |  |  |  |
| 9 *Morning,* | 29 | 26 | 80<br>50 | 30 | Weſt about Calm. | Clear Sky. |
| *Noon,* | 29 | 24 | 60<br>20 | 31 | Weſt brisk Gale. | Rainy. |
| 3 *Afternoon,* | 29 | 14 | 60 | 32 | *Ditto.* | *Ditto.* |
| 6 *Afternoon,* | 29 | 17 | 70<br>10 | 32 | Weſt about Calm. | *Ditto.* |
| 9 *Afternoon,* | 29 | 23 | 70 | 32 | Weſt brisk Gale. | Cloudy. |
| *Midnight.* | 29 | 31 | 70 | 33 | Weſtabout Calm. | *Ditto.* |

*Wedneſday,*

| *Wedneſday*, JUNE 7. 1721. | *Barometer.* | | *Hygrometer*, with its Diviſion and Parts. | *Thermometer.* | *Wind.* | *Weather.* |
|---|---|---|---|---|---|---|
| | I. | P. | | | | |
| 9 *Morning*, | 29 | 43 | 70 | 34 | Weſt moderate Gale. | Clear Sky. |
| *Noon*, | 29 | 46 | 40<br>30 | 33 | *Ditto.* | Rainy. |
| 3 *Afternoon*, | 29 | 49 | 60<br>20 | 33 | Weſt about Calm. | Cloudy. |
| 6 *Afternoon*, | 29 | 51 | 60 | 32 | *Ditto.* | Rainy. |
| 9 *Afternoon*, | 29 | 56 | 75<br>15 | 33 | Weſt moderate Gale. | *Ditto.* |
| *Midnight.* | 29 | 62 | 90<br>15 | 34 | *Ditto.* | Cloudy. |

From an Example of this Nature any one may eaſily diſpoſe himſelf to keep a Weather Book of the Country he reſides in; and, by comparing the Motions of the Quickſilver and Spirit with the Weather at the Times of Obſervation, may, with a little Practice, be able to prejudge nearly what Weather will happen. In ſome other Papers I ſhall explain a little more the Uſe of theſe Inſtruments, having prevail'd upon ſome curious Perſonages to keep the ſame kind of Regiſter in diverſe Parts of the Kingdom, who have promis'd to ſend me ſuch Obſervations as they make in the Courſe of theſe Experiments. I think it would add much to their Value, if we could be aſſur'd by a conſtant Remark, that upon every Change of Wind there is a Breeze, a Gale, or brisker Motion of the Air, than was before, and whether the Wind does not always change in, or immediately after a Storm of Thunder; and thoſe who have an Opportunity of making an Obſervation at ſix a Clock every Morning, would, I think, very much illuſtrate an Undertaking of this kind.

## CHAP. V.

### *Obſervations concerning the propagating Plants from the hotteſt Climates, and of naturalizing them with us; as alſo proper Rules for gathering of Seeds abroad, and of the Method of tranſporting them from one Country to another with Safety.*

*To Mr.* BRADLEY, *&c.*

*SIR,*

SINCE you are arriv'd to that Perfection, as to be able here at Home to make Climates anſwerable to any whatever aſſign'd Abroad, and produce equatoreal Heat in the Latitude of fifty one and a half; and ſince by that Means we ſhall be able to propagate in *England* whatever Fruits, Plants, or Flowers, which being either uſeful, curious, or profitable, are produc'd in the warmer Climates; and which, I doubt not, but in time it will be thought a national Intereſt to have naturaliz'd here. I believe, it will not be improper for Seamen to cultivate a Correſpondence with you, ſince thereby we may perhaps point out ſomething but little, if not entirely unknown to our *Engliſh* Gardens.

Indeed, two Things have prevented Sea-faring Perſons from bending their Thoughts this Way. Firſt, A Perſuaſion that Vegetables produc'd in thoſe hot Climates could not live with us; which Impediment you have now remov'd by your Stoves, hot Beds, *&c.* The ſecond is, that we being but little acquainted with the vegetable World, know not which are Rarities, which not; which you have already got, and which are entirely unknown to you; which Difficulty I hope you will alſo remove by publiſhing a Catalogue of ſuch *Exoticks* as you have already: And alſo, what others you would chiefly wiſh to be brought over to you; as likewiſe the Methods of doing it with moſt Likelihood of Succeſs. In the mean time I ſhall venture to mention to you ſome Things which I thought moſt remarkable when I us'd the Sea; not doubting your candid Acceptance of my well-meaning, however imperfect my Performance may be. And the firſt thing I ſhall take Notice of, is the *Palm-tree* of *Guinea*, the Juice of which is not only a pleaſant Drink, but alſo reckon'd ſo effectual againſt the Stone, that I have heard the old *Guinea* Surgeons give their Opinion, that it would as eaſily diſſolve the Stone in the Bladder, as Water does Loaf-Sugar: And I can ſpeak on my own Experience, that it is a moſt excellent Diuretick, and ſo effectually cur'd me of the Gravel, that I have not been troubled with it theſe twenty three Years ſince.

*Palm-Oil* is alſo excellent in ſeveral Caſes, as Aches, Sprains, Bruiſes, Swellings, and alſo often taken inwardly by the *Negroes*; but for what Diſtempers I had not Language enough to inform my ſelf.

Their *Yamm* is of the Potato-Tribe, but vaſtly larger; it is more mealy, is of a larger whiter Grain, which ſhines like that of double-refin'd Sugar, and is extreamly nouriſhing.

The *Coco-Nut* is pleaſant to the Taſte, and the Milk or Water contain'd in it diuretick; but the Tree being very tall, and a ſlow Grower, will hardly be worth our attempting here.

The *Water-Melons* are a moſt curious Fruit, and deſerve our greateſt Application; there are two ſorts, the red and the white, but the red are beſt. They are eaten commonly cut out in Slices, but the Pulp maſh'd, and eaten with *Madera* Wine and Loaf-Sugar, is incomparably fine.

I come now to our *Weſt-Indies*, where they have a *red Potato*, which is as ſweet as a Parſnip: And at *Barbadoes* they make of it a very pleaſant Drink, which they call *Mobby*, which I believe would take mightily with our Quality here in Summer; for it cools, and muſt be good againſt Conſumptions, as all the Potato-Tribe are; and, to take off the Windineſs of its being bottled, it is generally drank with Wine.

The *Barbadoes China-Orange* far exceeds the *Lisbon* in the Richneſs of its Juices. They have alſo a Fruit of the *Orange* Tribe call'd a *Shaddock*; it is from four to eight times as big as an *Orange*: It is a moſt noble Fruit to look at, and not unpleaſant to the Taſte; beſides, the Bloſſom is very large, ſweet, and fine, like the Orange; there are two ſorts of it, the red and the white; the red is the preferable.

The *Guava* is a very good Fruit, ſo is *Plantain*; but the *Bonana* is very fine, and could it be produc'd here, would anſwer the Coſt and Trouble. The *Lime* is very good againſt the Scurvy, and ſome prefer Punch made of it before that of Lemons: It is hardy, and whereas it grows well in the Iſland *Majorca*, where they have ſometimes much Snow, I doubt not but it would thrive with us, and make a moſt beautiful Ever-green Hedge. I wonder the *Sugar-Cane* has never been attempted in our Stoves, upon the Account of its being the fineſt of Pickles.

The *Mango* of *Malabar* would be of great Account in our Gardens, and would be prized more for the Deliciouſneſs of the Fruit, than the Excellency of the Pickles. And ſince I am upon the Subject of Pickles, I have heard that our large white Plum has been attempted with Succeſs that Way; and that the ſmall Capers of *Majorca* are thought to exceed the large ones of *Thoulon*.

The *Indian Corn* is what I believe would very well deſerve our cultivating here; for if an Acre of Reeds is worth two Acres of Corn, here you would have Reeds and Corn too; and the Corn (beſides ſeveral other Uſes) is ſo excellent for fattening Hogs, that it makes their Fat hard as Brawn, and not flabby, as ours generally is: The Reeds make a laſting and impenetrable Thatch, ſmall Fences, *&c.* and the Produce is prodigious.

The *Cranberry* would alſo be very well worth your Care; it would bear our Winter abroad extreamly well, and would require the Stove only in Summer, when your other *Exoticks* are all abroad.

I much admire that none of our Quality have eſſay'd to make the *Virginia Nightingale* and *Mocking-bird* Natives of this Iſland, for though that Country is hotter in Summer than ours, yet they have ſome Winters colder. A Friend of mine, who had a Grove near his Houſe, had one got looſe, who continued in the Grove till *January*, that ſome Boys came a Shooting that Way, after which it was never heard of. If we were but induſtrious this Way, our Woods would in a ſhort time rival our Operas, and our Songſters from *America*, put thoſe from *Italy* out of Countenance. I ſhould not even doubt, but that the *Jamaica* Nightingale, with his moſt ſweet Note, might be naturalized here; ſince the Turtle-Dove, which is a Native of the hotter Climes, does very well wild in our Woods, as I have often obſerv'd between *Petersfield* and *Portſmouth*.

It is a Pity no Body has eſſay'd to make the *Prickle-pear* of *Jamaica* uſeful: I am perſuaded it would make a beautiful and laſting Dye, if any ingenious Perſon would ſet heartily and in good earneſt about it.

When I contemplate on that eternal Verdure, which reigns over all that Part of the torrid Zone that I have been in, I am amaz'd from whence it is, that Nature ſupplies thoſe vaſt Trees and other Vegetables with Moiſture ſufficient to maintain them, not only with Life, but in flouriſhing Beauty, without one Drop of Rain for ſix Months together, a parching Sun daily exhauſting them, and the Earth ſo dry, as to be cleft ſeveral Yards deep. Should I conjecture it is from the vaſt Dews that fall every Night, it would thence undeniably follow, that there is a Circulation of the Juices in Vegetables; and that the Branches aſſiſt the Roots, as well as the Roots the Branches. But this is a Piece of Philoſophy not yet univerſally eſtabliſh'd, and which I muſt leave to your greater Genius and Experience to inlarge upon. Being, with all Submiſſion,

*SIR,*

*Your moſt humble Servant,*

*Octob.* 4, 1722. S. C.

The foregoing Letter has four Things in it, which I eſteem to be highly conſiderable in point of Gardening, and its Uſe. The firſt is, of Climates, and of their being artificially made with us. The ſecond is, to find out the beſt Methods of importing foreign Plants to this Kingdom. Thirdly, The Neceſſity of making known to the World the Uſes and Virtues of ſuch Exotick Plants as are brought to us. And, laſtly, What is extreamly worth our Conſideration; which is, that Plants have a conſiderable Share of Nouriſhment, which they draw from the Air, by way of their Leaves and Bark, as well as from the Earth and Water by means of their Roots.

As to the firſt part of this, which intimates, that we have in ſome meaſure imitated the warmeſt Climates of the World here in *England* by artificial Heats. It is true, we have now in Practice ſeveral Ways, which have been lately try'd for the Production of Heats of almoſt every Degree neceſſary for the Welfare of Plants of foreign Countries; and the laſt Year has given me the Pleaſure of finding, that thoſe Methods, I have recommended in my former Papers, have had ſuch good Succeſs, that more Gentlemen have taken that Part of Gardening upon them, in the laſt twelve Months, than has been known for many Years before. It is evident too, that where we can, by ſuch Means, render Exotick Plants any ways uſeful, though there is ſome little Expence or Trouble in bringing it about, yet a little extraordinary Trouble, when it is crown'd with reaſonable Profit, will not be grudged by the Undertaker. The late Inſtance of bringing the *Ananas* or Pine-Apple to Perfection in *England*, by the Ingenuity of Mr. *Telende*, has ſo far gain'd upon the Curious, that already many of our Nobility have undertaken the ſame Improvement; and it is not to be doubted, but a Year or two more will make this Undertaking much more general; and then I have good Hopes of ſeeing my Deſires compleated, of introducing all the *Weſt-Indian* as well as *Eaſt-Indian* Fruits among us.

*Tanners-Bark* is of extraordinary Uſe for making Plants ſtrike Root quickly; and as there is little or no Steam riſes from it, ſo the Leaves of ſuch Plants will not be endanger'd, as oftentimes thoſe are which are ſet upon hot Beds made of Horſe Dung.

We muſt obſerve too, that the *Bark*, when it is juſt taken out of the *Vats*, is ſubject to heat with Violence, and grow mouldy on the Top, and then ſpeedily loſe its Heat; but the beſt *Bark* is that which has been out of the *Vats* about a Fortnight before we uſe it, and that will heat gently and gradually, and continue hot a long Time.

The *ſecond* Thing to be conſider'd, is, the Method of importing Plants and Seeds from foreign Countries with Safety; and how ſuch Gentlemen who go abroad may judge of the Plants they meet with in foreign Parts, whether they may be acceptable to us, or not.

As to the bringing over of Seeds and Plants, I have been pretty large upon that Head in my *New Improvements* and other Writings of Gardening; but I ſhall take occaſion here to mention two or three new Particulars which are neceſſary to be obſerv'd in thoſe Caſes: I have already ſaid, that it is the beſt Way to gather the Seeds in their Shells and Caſes, and ſo to bring them to us; for beſides the Help ſuch Caſes will be to preſerve the Seeds during the Voyage, they will help to inform us of what Claſs or Order the Plants are of which they were taken from; or if we have occaſion to bring over Plants in Boxes of Earth, we may ſow ſome of the Seeds in thoſe Boxes of Earth, eſpecially thoſe of the Tree-kind, becauſe by that Time they come to us, they may be in ſome Forwardneſs to grow. But if we have not this Convenience, we may follow the Method ſent me by a very curious Gentleman, whoſe Name I know not; but as it carries a Face of good Reaſon with it, as far as that can guide me, it has my Approbation, and it is this: When the Seeds are gathered, and as well dry'd as the Warmth of the Air of the Place can do, or a warm Pocket will do in three or four Days, then put them into a glaſs Bottle, or glaz'd Veſſel, cloſely ſtopp'd, rather with a Stopple of the ſame ſort than with a Cork, for a Cork is apt to rot by change of Air; and then we muſt take care to have this Stopple well cemented with Pitch, or Bees-Wax and Rozin: The ſaid Veſſel muſt then be placed in a larger Jar, or Veſſel of glaz'd Earthenware, and the intermediate Space between both be fill'd with common Salt, even ſo as to cover the Stopple of the Seed-Bottle with Salt. By this Means, I judge, that it will be impoſſible for any of the Seeds to be injured in their Paſſage through different Climates; for yet I cannot diſcover, that any ſort of Inſect can live in a Body of common Salt; or where Salt is the Medium juſtly regulated between the Air and the Body, then ſuch Body cannot putrify ſo as to be render'd a proper *Nidus* for any Inſect to lay its Eggs in. We have many Inſtances of Fleſh that has not putrified after it has been well prepar'd with Salt; and it is as rational to think, that Seeds or Plants may be as well preſerv'd by it, when we conſider the Ways of pickling ſome ſorts of Fruits, which by only putting Salt to them, they are preſerv'd many Months, when of themſelves they would rot and be deſtroy'd in a few Days.

This Salt alſo corrects the extraordinary Heat of the warmer Climates, and by its being thus made the Wall, as I may call it, between the hot Air and the Seeds, ſo through its Fixation and Coldneſs, it is not to be ſuppos'd, that the exceſſive Heat of the hotteſt Climates can penetrate through it, ſo as to occaſion any conſiderable Decay in the Seed. And we may conſider likewiſe, that as this Salt is firſt fix'd by extraordinary Heat, ſo we cannot ſuppoſe, that while the Seeds are paſſing thro' the hot and dry Climates, the Salt can ſuffer any great Change or Alteration; and ſo it is as natural to ſuppoſe, that the Seeds which are under its Shelter cannot be much alter'd; and we well know, that a Climate about the Latitude of ours is rarely diſpos'd to melt Salt, ſo that under ſuch Shelter we can hardly find any Seeds to be brought to us that will not be in good Perfection. And this has led me often to admire at the Principles in Nature, that diſpoſe ſome Bodies to fix themſelves from Liquids by violent Heat; and others, which are in their Principle as Liquid, to be only fix'd by violent Cold. It is a Subject worth Conſideration, and will greatly help to the Deſign which we have now before us. It is alſo worthy our Notice, that ſome Plants do not grow in the Summer Months, but only have a vegetative Motion in the Winter; and others are only in Motion in the Summer, and upon the leaſt Approach of Cold, are fix'd, and loſe their Vegetation.

But to return to my Subject. We are next to conſider of the beſt Means for the Tranſportation of the Plants themſelves, and that may be done, in a ſhort Voyage, without any Earth about the Roots, if they are Trees of any Subſtance; that is to ſay, of an Inch, or an Inch and half Diameter in the Stem; but they muſt be very clear of Wet before they are pack'd up, otherwiſe there will be a Ferment about their Bark which will deſtroy them. I have known ſome Trees which have grown after they have been without Earth for ten Months, Orange Trees eſpecially; and a Willow Twig, which I us'd to carry in my Hand for more than ten Months, is now, after Years ſticking to the ſide of a Bank, become a good Tree.

But for tranſporting of Plants, which require Earth to grow in while they undergo a long Paſſage, I can give no better Directions than what I have lately obſerv'd in a Letter of Mr. *Mark Catesby*, a very ingenious Gentleman, written from *Carolina* to Mr. *Fairchild*, concerning the Carriage of Plants by Sea, which he has had good Experience of, as appears from the many Varieties of *Virginia* Plants, which of late Years he has ſent over to *England*; and is as follows.

## *To Mr.* FAIRCHILD.

*SIR*,

I Deſire when you ſend Plants by Shipping to remote Parts, to ſend them in Tubs, and not in Baskets; for Baskets contribute much to the Miſcarriage. Winter is the beſt Time; *October* if it could be, and to put the Tubs in the Ballaſt, which keeps them moiſt and moderately warm. So manag'd, I have had beſt Succeſs with Plants from *England*; for on the Quarter-Deck they are often wetted with Salt Water, and require the greateſt Tendance from bad Weather, and even with the greateſt Care they miſcarry, as they did with me. It is ſo hot in the Hold in Summer, that they ſpend their Sap at once, and dye, ſo that that is not a Time to ſend any Thing.

*Mark Catesby*.

I had almoſt forgot one Thing relating to the Carriage of Seeds from one Place to another, which this Gentleman uſually practis'd with Succeſs, *i. e.* that he always us'd to put the Seeds in the Shell of a Gourd, and ſeal them up, and by that means I have not known them to miſcarry, in ſeveral Parcels which he has ſent from *Virginia* to *England.*

Now we are come ſo far, it is neceſſary that we obſerve, that a Catalogue, however neceſſary it is, of thoſe Plants which will be acceptable to us, will fill up a larger Volume than I propoſe in theſe Writings; and then too we are in want of many of the Names, given them by the People of the Countries where they grow, and to call them only by the Names given them by our *Botaniſts*, would not be intelligible to any but ſuch as have ſtudied *Botany*; ſo that at preſent, I know no better Way, than adviſing in general all thoſe Gentlemen who uſe the Sea, and are diſpos'd to collect either Plants or Seeds abroad, to let them be chiefly of ſuch ſorts as are uſeful in their Timber, or in their Wood for Dying, or in their Roots, Fruits, *&c.* for Phyſick or Diet. Indeed, ſo far we may venture to preſcribe, in particular, that the *Guava* brought over to us in Plants, ſuppoſe of an Inch Diameter in the Stem; and likewiſe the *Tamarind*, in the ſame State, might be made to proſper with us; and ſo too the *Plantains* and *Bonana*'s of the *Weſt-Indies* ſhould be brought to us in Plants of ſome Strength, if we expect to have the deſir'd Succeſs with them; the Cinnamon-tree alſo from *Ceylon*, the *Pimento* from *Jamaica*, and any other Spice-Trees rather in Plants than in Seeds; or if the freſh Seeds of the Nutmeg could be gather'd, they may be planted in a Tub of Earth about two Inches deep, or coated with Clay about two Inches thick, or dipt in Bees-Wax. Ginger without curing, if the Roots are moderately dried in the Pocket or the Sun, will come well to us: The *Mango* is likewiſe very deſirable, and I doubt not, but the Stones, if they are preſerv'd in Clay, or Bees-Wax, or Earth, may be eaſily made to grow here with our Stoves. I am perſuaded, by ſome Experiments made by *William Parker* of *Healing*, Eſq; that all Plants which have rezinous Juices will bear our Climate without Shelter; for that curious Gentleman has already tried a vaſt Variety of thoſe kinds in the open Ground, and ſome of them, which are Natives of the warmer Climes, are as unconcern'd at our Winters, as if they were Natives of our own Climate; and I have found, that the Plants of *China* and *Perſia* do very well with us. As for Melons, Water-Melons, Gourds, or Pumpkins and Squaſhes, we have already, I believe, moſt of the ſorts, though there are few among us that uſe their Fruit, except of the firſt ſorts.

The Gentleman, who has been ſo kind to ſend me the Letter which has occaſion'd theſe Obſervations, mentions a Thought of his concerning the naturalizing the *Lime*, or wild Lemon, as ſome call it, in our Climate. I find, that this ſort of Plant is apt to bear Fruit plentifully with us, and to ripen its Fruit well, which is a certain Sign of its Welfare in our Latitude; and all the Orange or Lemon Race are hardy enough to ſtand the Winter with us, in common Green-houſes; and even ſome are hardy enough to ſtand abroad in our moſt Southern Quarters.

The greateſt Adventure of this kind that ever was attempted in *England*, was that famous Introduction of the Orange-Tree and Myrtle by Sir *Francis Carew* and Sir *Walter Raleigh*, who, whilſt they reſided in *Spain* in Queen *Elizabeth*'s Time, choſe theſe Fruits for our general Entertainment, and firſt made them familiar to our Climate in the Year 1585, when theſe great Men diſcover'd the building of the *Spaniſh Armada* againſt us. Tradition informs us, theſe Orange-Trees were immediately brought to *Bedington* in *Surry*, one of the Seats belonging to the ancient Family of the *Carews*. They were then in Caſes, and there was at firſt no other Safeguard for them in the Winter, than ſetting them into a Pit in the Ground, and covering them in ſevere Weather with Boards and Straw; and they were thus preſerv'd for ſeveral Years, till at length it was judg'd practicable to plant them in the natural Ground, where they have remain'd in extraordinary Health and Vigour, by giving them only a little Shelter in the Winter by means of a Frame of Timber, which could be taken to pieces at Pleaſure. But now the worthy Gentleman Sir *Nicholas Carew*, who at preſent is the Poſſeſſor of that fine Seat, has exceedingly adorn'd theſe beautiful Trees, by building a new Conſervatory for their Defence in Winter; which is ſo elegantly contriv'd, that though the Trees in themſelves may be eſteem'd one of the Wonders of our Country, their new Place of Shelter gives them ſo great a Luſtre, that it ſeems as if the ſame curious Deſign, which was begun by the learned Predeceſſors of this Family, is ſtill ſupported and maintained by their worthy Succeſſor: And this is the more valuable, as it is remarkable,

markable, that few Great Families have the ſame Spirit kept up for two Generations; what is ſet up by the Father, is often deſtroy'd by the Son; what is bought by one, is often ſold by the other, *&c.*

Theſe Orange-Trees were the firſt that ever were known to be brought into *England*, and the firſt likewiſe that were ſet in the natural Ground; and from the extraordinary Produce of Fruit in theſe, I doubt not but that we have been encourag'd to undertake the Culture of this noble Tree, and have now made it to be ſo familiar with our *Engliſh* Soil and Climate. We have likewiſe an Inſtance of the good Growth of the Lemon, and its bearing Fruit, even in the natural Ground, at a Gentleman's at *Peterſham* near *Richmond:* But this, as I am told, has ſome little Shelter in the Winter to defend it from the ſevereſt Froſts. However, in *Devonſhire* there are ſome Oranges which grow abroad without it.

I have, in ſome of my Writings, taken Notice of the famous Orange-Trees at *Bedington*, ſoon after I was firſt ſurpriz'd with their Beauty. But as to their Dimenſions, I can now more particularly explain my ſelf, from the Account I have got from Mr. *Henry Day*, the ingenious Gardiner, who now has the Management of them. " The Orange-Trees, ſays he, at Sir " *Nicholas Carew*'s at *Bedington*, are fourteen " Foot high from the naked Ground; for in " theſe there is not the Advantage of any Ad- " dition, ſuch as a Pot, Tub, or Caſe to be rec- " kon'd in their Height: The Girt of the Stem " is twenty nine Inches, and the ſpreading of " the Branches is twelve Foot one Way, and

"nine Foot another; theſe are continually full
"of Fruit, which ripen perfectly, and are as
"compleatly adorn'd with Flowers.

Among theſe Trees is a Myrtle of the *Spaniſh* Broad-leav'd kind, which is above eighteen Foot high, and ſpreads forty-five Foot; and if we join to this the Myrtles I have ſeen growing in *Devonſhire* in the natural Ground, I cannot ſee Occaſion of Fire for theſe ſorts of Plants, tho' it is commonly us'd in our Green-houſes; but, indeed, when Plants are in Pots, they are much more ſubject to ſuffer by the Froſt, than if they had the Poſſeſſion of the free Ground; and the more woody the Plants are, they are ſtill the more hardy. At the curious Mr. *Whitmill's* at *Hoxton*, I obſerve ſeveral Plants of Myrtle in good Health, which have ſtood many Years in the natural Ground, without any Shelter.

Among other Things, I would deſire, that the Rivers, Bogs or Lakes, in the ſeveral foreign Parts, be examin'd, and that, without Scruple, any Herb or Plant growing therein, if it has Seed which is ripe or near ripe, may have the Seed gather'd, and put into an earthen Veſſel, with Water and Earth. *N. B.* Some of theſe ripen their Seed under Water. They might thus be brought to us, and if it is remark'd, whether they grow in running or ſtanding Water, we can eaſily propagate them with us. In theſe ſorts of Plants, any one may be ſure to bring us ſomething new, if he will take the Pains to gather the Seeds; for, as yet, I do not know any but my ſelf, who has brought any new Water-plant to *England*, or has ever attempted it; and ſome of them are very ſurprizing in their manner of Growth. I could wiſh likewiſe, that we could get ſome Plants or Seeds of Pepper to grow with us, and ſome of the true Rhubarb, if poſſible, for this laſt has not yet grown in *Europe*, as I could ever find; though once, I remember, the late Mr. *Jacob Bobart* thought he had got it.

The *Hollanders*, who are certainly the moſt induſtrious People in the World, make it a great Part of their Buſineſs to collect Plants from all Parts of the World, in order to chuſe out thoſe which may be uſeful to them, either at Home or in ſome of their *Weſt-Indian* Plantations, and the States there give great Encouragement to ſuch as do their beſt Endeavour in this Way; for that Nation finds its Advantage by ſo doing, as in one particular Inſtance is evident; and that is, in cultivating Coffee in *Surinam*, which, with great Difficulty, they firſt got from *Arabia Fœlix* to *Batavia*, and thence to the *Cape*, ſo to *Amſterdam*, and then to *Surinam*, whither they ſent it in the Year 1714; and I now am inform'd, that the *Surinam* Plantation has already born a good Quantity of Coffee; but I think it would be much more the Intereſt of our Nation to encourage the Importing of ſtrange Plants, than any other upon Earth, conſidering the Happineſs of our Soil and Situation, and the great Variety of Climates in which we have Plantations or Settlements abroad. I have already been the Occaſion of planting ſeveral Millions of Ever-green Oaks in *England*, and have naturalized the Caper to our Climate, with ſeveral other Plants of Uſe; but the Plague raging about *Thoulon*, I have not been able to get Seeds over to make the Caper as common in *England* as I deſign'd it; but I doubt not but in a few Years we might have

Capers enough of our own Growth to ſerve the Nation; and though the Value of them may not perhaps be thought conſiderable, yet we are ſure they will ſufficiently pay the Rent of the Place.

But I come now to my third Propoſition, which is, that when we gather Plants abroad, we ſhould, if poſſible, learn the Names they are call'd by in the Country, and their Uſe or Virtues, and take ſome Notice of their Soil and Situation, but eſpecially the Climate; and, if it could be done, we ſhould know the Humour of every Climate a Plant is brought from, that is, how long the Heats laſt, and when the Rains begin to fall and terminate; for by theſe Hints we may be ſure of making every Plant laſting and valuable to us, which may be brought from any Part of the World: And for the Degree of Heat requir'd to imitate every Climate, I have already directed my Reader to the moſt ingenious Mr. *John Fowler* for his regulated Thermometers.

As for the Birds mention'd by my Correſpondent, which might be brought from other Countries to be made familiar with us, it is certainly to be done, and will ſucceed very well; for we have had many Inſtances of Fowls both of the Land and Water, which have done very well with us: As for Example, thoſe collected by Admiral *Churchill*, the Earl of *Portland*, the Duke of *Ormond*, Mr. *Dubois*, and ſome private Gentlemen of my Acquaintance, where even the Birds and Fowls of the hotteſt Climes, ſeem'd to rejoice as much in our open Air, as if they had been at Home, even ſo far as to lay their Eggs, and breed with us. At the Duke of *Portland's* there were Parrots, which for ſeveral Years, and, as I am inform'd, are at this Day flying wild in his Woods. Canary-Birds are bred here without Difficulty, if we give them Shelter; and I am inform'd by a Perſon of Honour, that he had two Paroquets had young ones hatch'd at his Houſe. Indeed, the two latter are generally kept in Houſes, and therefore, having more Warmth, may be excited to breed; but I am perſuaded we might bring them to breed in the open Air, by a Method which I have experienc'd among ſome foreign Fowls with Succeſs, and after a little more Knowledge in it, deſign to communicate. Nor need we deſpair even of preſerving and continuing with us thoſe Birds and Fowls which are Birds of Paſſage, ſuch as Woodcocks, Quails, Nightingales, and even Storks themſelves; for we have had many Inſtances, that Woodcocks have bred in *England*, and that Quails have liv'd with us the Year about, and Nightingales have been kept with us for ſeveral Years; and I remember a Stork that has tarry'd one whole Winter in Health with us. It has been ſuppoſed by ſome, that this laſt Bird retires to the Moon in the Winter, or, with more Probability, as far as *China* or its Confines. But whereever Nature directs theſe to go when they have their natural Liberty, yet we find, that when they are reſtrain'd by Accident from leaving us at the Seaſons of Paſſage, they can ſubſiſt with us for ſeveral Years; ſo that it is poſſible to tame them, and keep them with us conſtantly, as well as other Fowls; or elſe, if we were to have them young, and at once allow them the Freedom of our Fenny Countries, I ſuppoſe they would be as conſtant to us as they are to other Countries. I am perſuaded, that the Iſle of *Ely* and Fens in *Lincolnſhire* would furniſh them ſufficiently with Food, ſuch as Frogs and Fiſh, *&c.* to intice them to uſe thoſe Places every Summer, notwithſtanding the old ridiculous Notion, that they will not breed in any Government but a Commonwealth; it is their Food and right Treatment which engages them and all other Birds and Fowls to any Place. And ſo, therefore, if we have a Mind to have a Rookery, we may, I ſuppoſe, eaſily compaſs it by breeding up a good Number of young Rooks tame, and letting them looſe a little before Breeding-time, where there are high Trees. And Nightingales alſo may be bred tame, and turn'd out where there are Buſhes; and I have been told, they have bred every Year in the ſame Place by ſuch Means. We have alſo Inſtances enough of foreign Beaſts which have been naturalized to our Climate; but, indeed, there is no Occaſion for any of them to come among us, but ſuch as are Beaſts of Burden, or are proper for Food. The Camel and Dromedary, I think, would be of Service to us, for carrying Burdens, and their Swiftneſs: Likewiſe, I have known, that Fiſh have been brought hither from the *Eaſt-Indies*, and have liv'd ſeveral Years; and, at this Day, Mr. *John Warner*, a curious Gentleman at *Rotherhith*, has ſome ſorts of Fiſh in his Ponds which he brought from *Germany:* So that, in a Word, I am of Opinion, that there is not any Beaſt, Bird, Fiſh, or Plant, which may not be brought to live with us, and many of them to be ſo naturaliz'd to our Climate, as to breed and proſper with us only, by being a little taken Care of in their

Food. But we muſt obſerve, that when we introduce either Animal or Vegetable, we muſt imitate, as much as poſſible, the Mode of their Life in their own Country; for this muſt be preſerv'd equally, whether we have a Quadrupede, a Bird, a Fiſh, a Vegetable, or even an Inſect, if we propoſe Succeſs in our Undertakings.

I have yet to conſider one Part of this Letter, which relates to a very capital Point in Vegetation; *i. e.* the Way which Nature takes to help the Growth of Plants, and preſerve their Life, beſides what Nouriſhment they get from the Earth through their Roots.

My curious Correſpondent obſerves, that in ſome of the hotter Climates, the Earth is without Rain for ſix or ſeven Months together, and is ſo much parch'd and dryed every Summer Seaſon, that there is hardly any Moiſture to be found in it for three or four Foot deep, and the Heats are ſo exceſſive during that Time, that without the refreſhing Dews of the Nights (which are very conſiderable) the Plants muſt inevitably periſh; for they can have no Moiſture but what they receive from the Dews; and that Moiſture, he tells me, ſupports the Trees and Plants in a flouriſhing State; for the Leaves, by the exceſſive Heat of the Sun, contract themſelves towards the end of the Day, but expand themſelves, and become more explain'd by the falling Dews of the Nights; ſo that they poſſeſs a moſt agreeable Verdure in the Mornings and firſt Parts of the Day: From this Moiſture, likewiſe, of the Dews, the ſame Plants receive Nouriſhment enough to bring Fruit to Perfection. Thus is the Caſe of Plants in hot Countries, as my Correſpondent intimates in his Letter; and, as he well obſerves, helps very much to explain the Motion of the Sap, or, in other Terms, its Circulation; for by theſe Dews feeding the Leaves in the Nights, the whole Plant is nouriſh'd ſo as to ſupport itſelf againſt the extreme Heats of the Day.

The Fact alone may be diſputed by ſuch People as have not been led beyond the Limits of their own Country; or, at leaſt, have not had ſome Experience in the Culture of Exotick Plants. In the latter, which is next our View, we find, that when we confine a Plant from the Air in a common Conſervatory, by keeping the Windows and Doors cloſe ſhut for a few Days, the Leaves of that Plant will turn yellow, or of a pale Colour, which is a certain Token of Sickneſs; and if then we continue to confine it without the Freedom of freſh Air, we muſt give it over for loſt; this is certain, Experience furniſhes us with Examples of it every Day. We may then be aſſur'd, it is not the Nouriſhment drawn by Roots alone which ſupports a Plant; but the Air muſt likewiſe contribute. There is a Moiſture in the open or freſh Air which is imbibed by the ſpongy Parts in a Plant, that communicates itſelf to its principal Parts, and helps to nouriſh the Veſſels through which the common Juices move in their Circulation, as it is in the Caſe of an animal Body, which being confin'd from free Air, cannot be healthful.

We have a remarkable Inſtance of the great Helps which Plants receive from the Air, in the ſeveral ſorts of *Sedums* and ſome *Aloes*, which being taken in Branches and Slips, and hung up in ſome Room where the Air has a free Paſſage, thoſe Branches and Slips will remain firm and green for many Years; and moreover, when the

Air is tending to Moiſture, theſe Branches and Slips will put forth Roots, which ſometimes ſhoot to a very great Length and Thickneſs; but at the Approach of dry Weather, or if they are debarr'd from free Air, they ſhrink and dry up. This ſpringing of Roots from the Parts of Plants which never had any Roots before, denotes, that there is every Property in the Air which is neceſſary for the Growth of Plants, though not for the Nouriſhment of Plants; for the Roots are thus made by frequent Changes of Weather. We find the Plants do not enlarge themſelves, but decreaſe gradually in their Subſtance: It is then plain that the Air contributes to explain and unfold the ſeveral Parts of Plants, as well as the Earth and Water. But what I have already ſaid in ſome of my former Treatiſes concerning the *Anatomy of Plants*, will give us a better Light into this curious Scene of Nature, and will plainly ſhew us, that all the Parts of a Plant are ſo interwoven one with the other, that not any one Part of the Body can be affected, but all the reſt muſt ſhare with it; which cannot be accounted for, without allowing, that there is a Circulation of Juices in Plants, and that the Air is abſolutely neceſſary to aſſiſt in that Operation, by preſerving the ſeveral Parts in a way of Action.

Another Inſtance to prove the Neceſſity of Air to ſupport Plants, is, that when Plants, ſuch as Orange-Trees and ſome others, have been a long Time without Earth, ſuch as their Caſe is when they are in their Paſſage from *Genoa* to us, we find no Remedy ſo good to bring their Veſſels to a right Tone, or to prepare them for Action, as to lay them for a few Days upon a piece of Ground, in a ſhady Place. The *Efflu-*

*via* riſing from ſuch Ground, moiſtening the Air, reform the Veſſels, which at firſt laying down were ſhrunk, and diſpoſe them for the Reception of the Juices of the Earth. Whenever thoſe Plants are ſet into it, they will then grow liberally; but if they were to be immediately planted from the Cheſts they were brought in, without Preparation of this kind, their Growth would be hazardous; which is all I ſhall ſay at this Time relating to the Letter.

## Chap. VI.

### *Particular Obſervations concerning the Culture of the Coffee-tree, and other tender Exotick Plants, with a Table containing the Names of Places and their Degrees of Latitude, from whence we may expect curious Plants, in a Letter to* William Parker *of* Healing, *Eſq;*

*SIR,*

WHEN I had the Pleaſure of ſeeing your curious Garden at *Healing*, I obſerv'd ſo many foreign Plants which were naturaliz'd to our Climate, that I could not help reflecting how uſeful an Example your Method might be to the Gentlemen of our Country; who, above all others, have Opportunity of trading to foreign Parts, and eſpecially to *America*, where Abundance of uſeful and profitable Trees and Plants are Natives. In *Maryland*, *Virginia* and *Carolina*, we have diſcover'd many Plants which the late Dutcheſs of *Beaufort*, the late Dr. *Compton* Biſhop of *London*, *Samuel Reynardſon*, Eſq; and ſome other Virtuoſi of the firſt Rank, made familiar to the *Engliſh* Climate: But hitherto no Gentleman has attempted to diſpoſe of ſo great Varieties of foreign Plants in the open Air, with ſo good Succeſs as you have done, I remember an Obſervation you was ſo kind to acquaint me with, which I think very extraordinary, *viz.* that among your Experiments in ſetting foreign Trees abroad in your Garden, you found that ſuch Plants as had reſinous Juices would bear our Winters, though they were Natives of much warmer Climates than any I have mention'd; and indeed there are Witneſſes enough in your Garden of that ſort. If we were to follow this Example rightly, I ſuppoſe in a few Years our Woods and Groves would be adorn'd with many rich and uſeful Trees, which at preſent, thro' the Fear we have of venturing ſuch Curioſities abroad, are hardly eſteem'd worthy our Notice, or at leaſt neglected as uſeleſs Things in our Climate; for though we can with the greateſt Facility preſerve them during the Winter Seaſon in Houſes, yet, as the *End* of the Trees I mean is chiefly to make good Timber, or to yield ſome Benefit from their Berries or Fruits, which they will not produce till they are of a much larger Size than we can manage in a Houſe; ſo it has been hardly thought worth our while to cultivate them at all, conſidering the great Expence we muſt be at to no Purpoſe, but for the ſake of Curioſity only. I hope, however, the Example you have now ſet us, will overcome theſe Difficulties. Indeed, that Houſes of Shelter are neceſſary to preſerve ſuch Plants during the Winters, for the firſt two or three Years, till they have got Strength, is undeniable; and as ſoon as they come to ſuch a State, as to be a little acquainted with our Climate, by being harden'd by Degrees, to ſet them abroad in Groves as you have done, is as neceſſary; and they will then thrive apace, and give us not only ly the Pleaſure of obſerving their Variety, but likewiſe a promiſing Proſpect of receiving Benefit from them. The *Ilex*, though the Value of its Timber has for a long Time been well known, beſides its being a moſt beautiful Ever-green; yet, though we have had Examples of forty Years ſtanding, that it would proſper well in the open Air of our Climate, very few or none have offer'd to cultivate it in any Quantity with us, till I enter'd upon it: and ſince that Time, which is within the Compaſs of ſix Years, many Millions of them have been rais'd here from Acorns brought from *Italy*, *Spain*, and *Virginia*, as well as great Numbers of *Cork* Trees, which grow very well with us. But if there are ſome Trees abroad, in the Climates I ſpeak of, whoſe Virtues are not yet known; my Opinion is, that even thoſe ſhould not be neglected; for as there was nothing created in vain, ſo I ſuppoſe that theſe will ſome Time or other diſcover themſelves to be of uſe, as well as thoſe have done which are now uſeful to us. But ſince the Arrival of your Coffee-Trees, and the great Deſign you are carrying on, of bringing forward the delicious Fruits of the warmer Parts of the World, by Stoves, or Hot-houſes, I ſhall, in Obedience to your Commands, give you an Account of the Management of the Coffee-Trees, as I obſerv'd it at the Phyſick-Garden at *Amſterdam*; and I ſhall add to it ſome Remarks I have got together concerning the Spring-Seaſons in the ſeveral Climates of the World, to ſave you the Trouble of calculating in particular for every Plant you receive from Abroad; for without that be done, we may give our Plants Heat at a wrong Seaſon, and weaken them, perhaps, beyond Recovery.

The Coffee-Trees at *Amſterdam*, which proſper ſo well there, that they bring Bloſſoms, and ripen Fruit every Year, are kept conſtantly in a glaſs Caſe, which, as near as I can gueſs, is about fifteen Foot long, and about twelve Foot wide, the Height about twenty Foot, the Front is all Glaſs; under the Floor is an Oven for Fire, which leads into Flues, that after their Paſſage here and there, end in a Chimney as our other Stoves do. They uſe no Tanners Bark in this Houſe, nor give the Plants any Air immediately from Abroad all the Summer, but through little Caſements about a Foot ſquare, placed about the middle of the great Windows or Pannels of Glaſs; and even theſe little Caſements are ſeldom open'd, becauſe there is a Door which opens out of this glaſs Caſe into a large Green-houſe, which they commonly keep open in the Summer Time.

It is a Cuſtom there likewiſe, twice or thrice in a Summer to clean the Leaves of the Plants with wet Sponges, which takes off the Duſt that ſtops the Pores of the Leaves; and I look upon this to be of conſiderable Uſe, becauſe I ſuppoſe the Leaves receive ſome Nouriſhment from the Air, which circulates about them, and conſequently the whole Plant is benefited by it.

I obſerv'd that the Gardiner there gave them frequent Waterings, a little at a Time, and their Earth was very light; but eſpecially the Summer when the green Fruit was toward ripening, he gave them more Water than at other Times, *i. e.* in *June*. It is obſervable, that when the Fruit is ripe about the beginning of *July*, it muſt be gather'd, and immediately the Seeds muſt be clear'd from the Pulp, and ſet in the Ground, otherwiſe they will not ſprout. This particularly the moſt excellent Gardiner at *Amſterdam*, Mr. *Cornelius*, obſerves diligently; and though I ſent ſome Berries freſh gather'd by the Poſt, which were not above four Days in the Paſſage to *London*, to a very great Artiſt, they could not be made to grow; therefore, I think it much the beſt Way to have the Coffee-Seeds you expect come over in Earth, by way of *Rotterdam*, or *Helvoet-Sluis*, which will be much ſooner with you than by Way of the *Texel* from *Amſterdam*; for ſometimes I have known a Ship has been two Months in the Paſſage from *Amſterdam* to *London*, by Way of the *Texel*, and the Seeds would be quite ſpoil'd in that Time, for in the natural Earth only, I have ſeen ſome Coffee Plants above Ground within three Weeks after the Seed was put into the Ground. And ſo the Cocoa-Nuts, of which the Chocolate is made, ſhould be either rais'd in Caſes in the Countries where they grow, or elſe the Nuts planted in thoſe Places a due Depth in Boxes of Earth, ſo that they may come up in the Paſſage, if it is their Nature to be quickly hatch'd, or appear above Ground, or otherwiſe we muſt not expect them to do any good with us; for I am told, that in the very Country where they ripen, they will not grow if they are kept out of the Ground three or four Days after they are gather'd. What I ſay of the Coffee-Berries being ſpoil'd by being ſo long in Earth, as two Months from *Amſterdam* to *London*, will only happen if they were to be put promiſcuouſly into a Body of Earth, not if they were planted an Inch or two deep in it.

As for the Time of making the Fires in the Stoves, they begin in *October*, and continue it conſtantly, till the Weather is warm enough in the Spring for the Plant; I ſuppoſe this continued Fire in the Stoves is neceſſary to continue the Growth of the Plants, when the Juices are once flowing; for to warm the Houſe one Day, and let it cool the next, will certainly check the Growth of a Plant; and this Method, which we have taken too often in our *Engliſh* Green-houſes, has, in my Opinion, greatly contributed to deſtroy many a good Plant. And then again, the Practice which has been ſo common with us to ſet Plants of all Climates together in one Houſe, and give them all Heat at the ſame Time, has been another Means of deſtroying Plants; but as your Stove is contriv'd in ſuch a manner, as to be ſeparated one Part from the other by a Partition, ſo, I judge, your Heat may be govern'd ſo as not to be every where at the ſame Time alike, and therefore may bring Plants of different Climates to Perfection.

The Gardiner of the *Amſterdam* Gardens has an extraordinary Regard to this, as I obſerve from his dividing his Stoves into many Parts; and I find in each only the Plants which come from one Country.

The Coffee-Tree, which grows naturally in the Kingdom of *Yaiman* in *Arabia Fœlix*, is found from the Latitude of 18 to 20 Degrees North; and the *Dutch* now have it growing at *Batavia*, 7 Deg. South Latitude, and at *Surinam*, 8 Deg. North. So I doubt not but in any of our Settlements between the Tropicks, we might have Coffee in as great Perfection as in its Native Country; and even towards the Southermoſt Parts of *Carolina*; for it is experienc'd in your Garden near *Croydon*, which is near the ſame Latitude with *London*, *viz.* 52 Deg. and a half North Latitude, the ordinary Plants of Countries above 16 Deg. more Southward thrive very well, without Shelter; ſo that I ſee no room to doubt of the good Succeſs of the Coffee-Tree, if it is only mov'd 10 or 11 Deg. more North than its Native Place, eſpecially ſince both *Yaiman* and *Carolina* are North Latitude, and conſequently the Time of the Sun's Progreſs towards them is the ſame, though the Spring of the firſt is a little ſooner than the other; I yet am of Opinion, that the Places which lie without the Tropics only five or ſix Degrees, have always Warmth enough to keep Plants that grow naturally about five or ſix Degrees within the Tropics.

This being all I can remember of the Coffee-Tree and its Culture in the Gardens at *Amſterdam*, I ſhall proceed to give you a Liſt of all the principal Places Names, from whence we may expect to receive Plants, and mark to each of them their Degree of Latitude, whether North or South, which I ſhall think very well worth my while to have put in the Order you will find it, if it may prove uſeful to you.

* * *

## *Alphabetical* LIST *of the Names of Places in the ſeveral Parts of the World, with their Degrees of Latitude,* &c.

### A.

*Acadia*, from 49 to 45 North.
*Azores* Iſles, from 39 to 37 North.
*Algiers*, and the greateſt Part of *Barbary* Coaſt, from 37 to 35 North.
*Alexandria*, 31 North.
*Aden*, 12 North.
*Amboina*, 3 South.
*Antegoa*, 17 North.
*Amazons* Country, from 18 South to the Line.
*Angola*, 11 South.

### B.

*Buenos Aires*, 35 South.
*Barbadoes* Iſle, 13 North.
*Brazil*, from 35 South to the Line.
*Bermudas*, 33 North.
*Bahama* Iſles, from 28 to 22 North.
*Bayador*, 26 North.
*Byſagos*, 11 North.
*Baudera Baſhee* in the South of *Perſia*, 28 North.
*Borneo* Iſles, from 6 North to the Line, and two Degrees South.

*Banda*, the Nutmeg Iſland, 4 South.
*Bencola*, 4 South.
*Batavia*, 7 South.
*Bombay*, 19 North.
*Bengale*, 23 North.

## C.

*Canada*, from 50 to 38 North.
*Carolina* (*North*) from 36 to 33 North.
*Carolina* (*South*) from 33 to 30 North.
*Calefornia*, from 44 to 23 ½ North.
*Cuba*, from 22 to 19 North.
*Caribbee* Iſlands, from 20 to 10 North.
*Cape Verd* Iſlands, from 18 to 12 North.
*Canary* Iſlands, from 30 to 28 North.
*Corſica*, 42 North.
*Candia*, 35 North.
*Cyprus*, 35 North.
*Cambaya*, 23 North.
*Cormandel*, from 16 to 8 North.
*Camboyda*, 14 North.
*Ceylon*, from 10 to 6 North.
*Conchinchina*, from 20 to 10 North.
*China*, from 41 to 20 North.
*Chuſan*, 30 North.
*Ceram* Iſle, 3 South.
*Curaſan* Iſle, 12 North.
*Carthagena*, 11 North.
*Cape Horn*, 64 South.
*Chiloa* Iſles, 42 South.
*Chili*, from 44 to 24 South.
*Cape St. Auguſtine*, 8 South.
*Cape Frio*, 23 South.
*Cape of Good Hope*, or *Cape Bona Eſperanza*, 34 South.

*Cafres*, 25 South.
*Congo*, 7 South.

## F.

*Florida*, from 38 to 24 North.
*France*, from 50 to 42 and ½ North.
*Fort Ventura*, 28 North.
*Formoſa* Iſle, from 25 to 22 North.
*Fort St. David*, 12 North.
*Fort St. George*, 13 North.
*Ferdinand* Iſles, 33 South.

## G.

*Gibraltar*, 36 North.
*Greece*, from 41 to 36 North.
*Guinea* (*Upper*) from 18 North to the Line.
*Gambia*, 13 North.
*Gold Coaſt* in *Guinea*, 8 North.
*Golconda*, 18 North.
*Gombroon*, 27 North.
*Guinea* (*Lower*) from 17 South to 3 North.

## H.

*Hiſpaniola*, from 20 to 18 and ½ North.
*Honduras Bay*, from 20 to 17 North.
*Hungary*, from 50 to 46 North.
*Horn Cape*, 64 South.
*Hottentots* Country, from 34 to 30 South.

## I.

*Jamaica*, 18 North.
*Italy*, from 45 to 39 North.
*Iſpahan* in *Perſia*, 33 North.
*Japon* or *Japan Iſles*, from 40 to 20 North.
*Java* from 8 to 6 South.

*St. Salvador*, 12 South.
*St. Domingo*, 33 South.
*Surinam*, 8 North.
*Spain*, from 43 to 36 North.
*Sardinia*, from 40 to 39 North.
*Sicily*, from 39 to 38 North.
*Scanderone*, 36 ½ North.
*St. Thomas Iſle*, under the Line.
*Surat*, 20 North.
*Sumatra*, under the Line.
*Smyrna*, 38 North.
*Socotra Iſle*, 13 North.
*Solar Iſles*, about 7 South.
*Siam*, 15 North.
*St. Chriſtophers*, 17 North.

## T.

*Thoulon*, 43 North.
*Tripoli*, 32 North.
*Turkey* in *Europe*, from 48 to 41 North.
*Ternate*, the Iſland where the Clove-Trees grow, 2 North.
*Timor Iſle*, 9 South.
*Trinidad Iſle*, 10 North.
*Terra del Fuogo*, from 56 to 54 South.

## V.

*Virginia*, 37 North.
*Vera Cruz*, in *Campeche* Bay, 18 North.
*Ventura Forte*, 28 North.
*Viſapour*, 17 North.
*Vera Cruz*, in the *Amazons* Country, under the Line.

*Yeman*.

## Y

*Yaiman* in *Arabia Felix*, the Coffee Country, 20 North.

## Z.

*Zanguebar*, from 16 South to the Line.

And now, Sir, that I have given you an Account of the Latitudes of Places, I think it may not be amiſs to ſend you likewiſe the following Memorandums, for the Uſe of your Gardiners, that they may better underſtand the Uſe of the foregoing Liſt of Names, by knowing at what Seaſons the Sun is neareſt to any particular Place, and in what Months fartheſt from it, that the Fires may be regulated accordingly. The Figure annex'd repreſents the Globe, with the Equinoctial Line, and the two Tropics; whereby they will find that the Extent of the Sun's Progreſs is 47 Degrees from the Tropic of *Cancer* to the Tropic of *Capricorn*; and that the Sun has its Courſe from Tropic to Tropic twice every Year: I think it proper, as I now talk to Gardiners, who, perhaps, have not had the Opportunity of any great Share of Learning, to treat them upon this Head in the moſt eaſy and familiar Way, and talk of the Sun's Motion backwards and forwards, which they generally believe, rather than to perplex them with ſpeaking of the Earth's Motion, which they, perhaps, cannot comprehend.

From A. A. to B. in the Figure, is North Latitude.

From A. A. to C. is South Latitude.

From D. to D. we ſhall find the Degrees of North Latitude mark'd 10, 20, 30, 40, 50, which is near the Southermoſt Part of *England*, *London* is 52 and ½ Degrees.

From E. E. we find the Degrees of South Latitude mark'd 10, 20, 30, 40, *&c.*

Every Diviſion in that Circle of Degrees, whether it is mark'd Black or White, is two Degrees, or 120 Miles.

The Sun is upon the Line *March* 11. and alſo upon the ſame Line *September* 10; ſo that at either of thoſe Times the Sun's Influence is equal on both Sides the Line: All the South Latitudes have the ſame Share of it as the North Latitudes.

The Sun is at the Tropic of *Cancer*, *June* 11, which is the utmoſt Extent of its Courſe Northward: This Tropic is 23 Degrees and ½ North of the Line, which, reckoning ſixty Miles to each Degree, is 1410 Miles between the Tropic and the Line, which is the Progreſs of the Sun in thirteen Weeks, or a Quarter of a Year; ſo that in the Sun's Courſe from the Tropic of *Cancer* to the Line, it retreats 15 and ½ Miles every Day, or about 108 Miles *per* Week; which in a Month of 30 Days is 465 Miles or above 7 Degrees and ½.

For the better explaining of this, ſee the following Remarks.

*June* 11, the Sun in the Tropic of *Cancer*, or 23 Degrees and ½ North Latitude.

*July* about the 11th, the Sun about 16 Degrees North Latitude.

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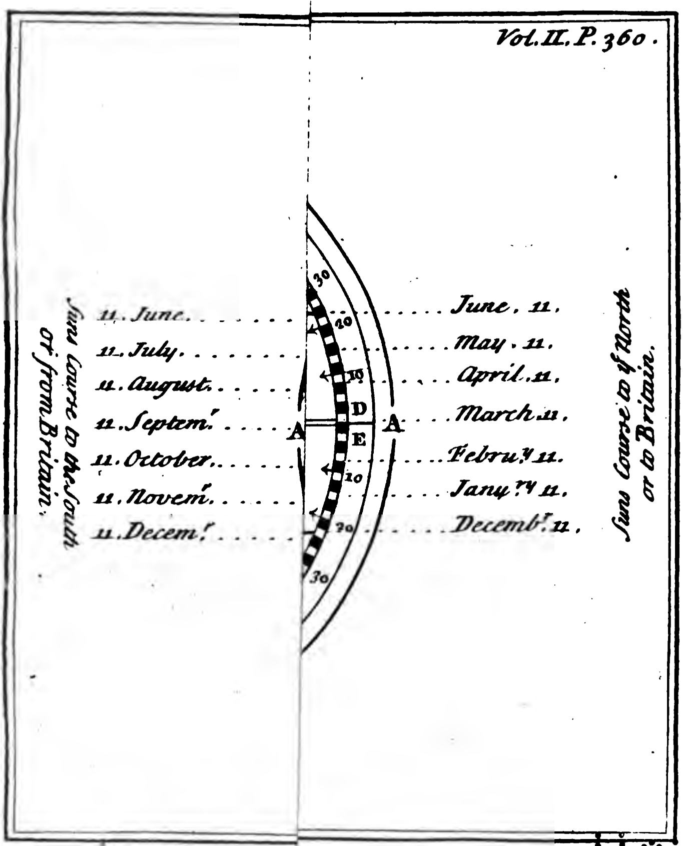
Suns Course to the South or from Britain.
11. June.
11. July.
11. August.
11. Septem.r
11. October.
11. Novem.r
11. Decem.r
June. 11.
May. 11.
April. 11.
March. 11.
Febru.y 11.
Jany.ry 11.
Decemb.r 11.
A
A
D
E
30
20
10
10
20
30
Suns Course to ye North or to Britain.

*Auguſt* about the ſame Day, about 8 Degrees North Latitude.

*September* about the 11th, upon the Line.

*October* about the ſame Day, about 8 Degrees South Latitude.

*November* about the ſame Day, near 16 Degrees South Latitude.

*December* about the ſame Time, the Sun in the Tropic of *Capricorn*, its fartheſt Bounds to the Southward.

*January* about the ſame Day, it has return'd or come nearer to us about 8 Degrees, and is then near 16 Degrees South Latitude.

*February* about the ſame Day, the Sun is about 8 Degrees South Latitude.

*March* about the ſame Day, the Sun is returned to the Line.

*April* about the ſame Day, the Sun is advanced to about 8 Degrees North Latitude.

*May* about the ſame Day, the Sun is advanc'd to about 16 Degrees North Latitude.

From this and the Figure, any one may eaſily find out in what Latitude the Sun is in every Month, and how it approaches or goes farther off the native Country of the Plants we deſign to cultivate; for Example, if we were to keep the Nutmeg-Tree, let us look for *Banda* in the foregoing Catalogue, and we ſhall find it in 4 Degrees South; then ſee in the Figure the Months when the Sun is neareſt that Place, which we ſhall find *September* and *October*, and *January* and *February*; in theſe Months we muſt keep Fires in our Stoves, at leaſt up to the Pine-Apple Heat in Mr. *Fowler*'s Thermometers; and ſo indeed the Fires muſt be ſtill kept on from the firſt lighting in *September*, till we may place them in a glaſs Caſe in Tanners Bark, which may begin about the middle of *April*, and laſt till the Time we begin to make Fires again in *September*; for we muſt conſider, that Places ſo near the Line are always very much under the Sun's Influence, though more at ſome Time than others; ſo when ſuch Plants are with us, we ſhould only give them Air directly from Abroad in our hotteſt Days of Summer.

Suppoſe, in the next Place, we were to propagate the Tea which grows in *China*, let us look for *China* in the foregoing Catalogue, and we ſhall find it extend from 41 to 20 North Latitude. I ſhall ſuppoſe that the Tea grows about the middle of the Country, which is 30 Degrees North, or about the ſame Latitude with *South Carolina*; then as we have Plants from the South Parts of *Carolina*, which after a little Care to harden them, will ſtand abroad with us, I make no doubt but the *China* Tea, which appears to grow about 30 Degrees North, may be eaſily propagated with us; but eſpecially would proſper exceeding well, to be planted in *South Carolina*, from whence we might ſoon bring large Quantities, if it was once planted there, and make three or four Returns for one *China* Voyage. But as to the propagating of it in *England*, if we were to give it Shelter in the Winter, we may ſee by the Figure, that the Summers in *China* are only a little earlier than with us, and the Winters are of courſe much about the ſame Time; beſides, as 30 Degrees are out of the Tropics, there need not be any artificial Heat applied, nor any other Care taken to preſerve the Tea with us, but to give it ſome little Shelter in extream froſty Weather; and it is a Query whether even that be neceſſary or not; for we muſt be careful not to give Heat to a Plant that does not require it: This we have experienc'd in the propagating of the Caper; we us'd to put it into our warmeſt Stoves, and took a great deal of Pains with it to no Purpoſe, till I ſow'd it in ſome old Walls, and gave it the free Air, and then it anſwer'd the End of bearing Flowers as well as it does at *Thoulon*.

While I am ſpeaking of tranſplanting theſe Riches from one Place to another, I cannot help wondering, that the Cochineel, which is plainly an Inſect, is not induſtriouſly propagated in our *Weſt-Indian* Settlements; ſeeing it might be done only by tranſplanting one of the ſort of Opuntia's whereon this Inſect has laid its Eggs; that alone would ſoon fill a Country with it, as well as the Plant neceſſary for it to feed upon.

For a third Example, let us conſider *Barbadoes*, whoſe Latitude is 13 North; whether or not the Sun in its greateſt Diſtance from it be more than the Sun is from *England* in the longeſt Day? We ſhall find by the Figure, that at the ſhorteſt Day with us, the Sun is diſtant from *Barbadoes* 36 and ½ Degrees; but in our longeſt Day the Sun is only diſtant from us 29 Degrees, which is 7 Degrees and ½ that the Sun is then nearer to us than it is to *Barbadoes* at our ſhorteſt Day. I have heard that the Nutmeg-Tree was once in *Barbadoes*, and proſper'd very well; and I ſee no Reaſon why we may not try it in that Iſland once more, or at leaſt the Cinnamon, which now grows in *Ceylon*, whoſe Latitude is from 10 to 6 North.

Conſidering the Latitude of *Jamaica*, which is 18 North, no Place could better fit the Coffee-Tree than this; ſo the moſt Southward of the *Caribbee* Iſlands would do very well for the

Pepper, Clove-Trees, and any of the Spices, for the Nutmeg grows in 4 Degrees North, the Cloves in the Iſland *Ternata* 1 Degrees North, the Pepper in *Borneo* 6 Degrees North, as well as under the Line: and the Cinnamon at *Ceylon* from 10 to 6 North; ſo I doubt not but they will all do well in the South of the *Caribbee* Iſles, which lie in 10 Degrees North, for even 10 Degrees difference between the Tropics is of little Import to Plants which are Natives of the torrid Zone.

There is one Example more I think neceſſary to offer, and that is, if we receive Plants from the *Cape of good Hope*, we ſhall, if we look into the Table, find its Latitude to be 34 Degrees South; then if we look into the Figure we may ſee that the Cape is near 11 Degrees beyond the Tropic of *Capricorn*, and, we may ſuppoſe, has much the ſame Influence of the Sun, when the Sun is in the Tropic of *Capricorn*, that *Gibraltar* has from the Sun when it is in the Tropic of *Cancer*; for *Gibraltar* is in 36 North, as the Cape is 34 South: Their Winters and Summers are directly oppoſite, and that is chiefly what we have to regard in the Management of the Cape Plants; we muſt give them what Encouragement they have in the Months *November*, *December*, *January*, and *February*; for the Figure ſhews us the Sun is neareſt to the Cape in thoſe Months, and indeed the Plants themſelves ſhew it us in their Attempts of flowering at thoſe Seaſons: But we muſt not ſuppoſe that all the Plants, we receive from the Cape, are Natives of that Place; for there are many ſorts of Plants cultivated at the Cape, which are Plants of other Countries, ſo we muſt uſe ſome Caution in this Affair.

In the Figure we may obſerve, that in the Month of *May* the Sun is juſt as near us as it is in *July*, and in *April* as it is in *Auguſt*, in *March* as in *September*; and yet though the Sun is equidiſtant from us in *July* and *May*, we find that the Heat of *July* is far ſuperior to that of *May*, which I ſuppoſe happens becauſe the Sun has had more Time to warm the Earth on our Side, and conſequently the Body of Air; but I think I have ſaid enough upon this Head to render my Scheme intelligible, and ſhall only add, that it is my Wiſh, that every one who goes abroad to the Countries where thoſe extraordinary Plants are, which I have mention'd, would be induſtrious to bring them to us, that in due Time they may be render'd uſeful. I cannot ſuppoſe, indeed, that a Ship will put ſo far out of her Way, upon her Return from an Eaſtern Voyage, as to leave Plants at any of our Settlements in *America*; but let the Plants be brought to *England*, there to be kept till a proper Opportunity offers to ſend them to the Places deſign'd for them; the new Stoves that are lately built will preſerve them, if ſuch Inſtructions as theſe be followed, let them come from what Latitude they will; nor let any one deſpair of Succeſs, though they have not Stoves immediately of their own to put the Plants into which they bring over, ſo long as there is ſuch a Garden as Mr. *Fairchild*'s at *Hoxton*, near *London*, where ſuch Things may be immediately taken Care of, and manag'd with Skill. I remain,

*Your moſt humble Servant,*

R. BRADLEY.

CHAP.

## CHAP. VII.

### *A Method of meliorating* Orange-Trees *in* England, *ſo as to make them thrive and bear more profitable Fruit than has yet ripen'd with us by the ordinary Practice.*

THOUGH we have ſeveral very fine Orangeries in *England*, which produce Abundance of Fruit, yet as that Fruit has not always the Advantage of ſufficient Nouriſhment from the Tree, and the Tree is not without Hazard of being curb'd in its Vigour by Accidents, which often happen in the common Way of Practice, it may not be amiſs to ſay ſomething of planting Orange-Trees in the natural Ground, as we may obſerve them now growing in Sir *Nicholas Carew*'s Gardens at *Bedington*, in *Surry*, where they always fruit in great Quantity, and bring their Fruit to extraordinary Perfection, without being ſubject to the Inconveniences which too frequently attend thoſe Trees that are cultivated in Tubs, Pots or Caſes; ſuch as chilling the Roots, frequent occaſions of Shifting, want of the neceſſary Quantity of Water, or having too much of it; while theſe that are planted in the natural Ground are free in Growth, nor loſe their Vigour by ſhifting, or can be ſubject to any Inconvenience or Hazard but from the Froſt, which may be as well guarded againſt, as if they were to be ſet into a Green-Houſe.

Therefore I think what I ſhall now treat of may be uſeful, not only in *England*, but about *Paris* too, where this ſort of Fruit is ſo high priced, that I have paid too Livres for three imperfect ones, which were not larger than common Walnuts; they were the Growth of ſome Orangery of that Province, for the *Pariſians* have not commonly the Advantage of receiving this Fruit from *Lisbon*.

When I was at *Bedington* on purpoſe to take this View, I obſerv'd ſome Orange-Trees which had been tranſplanted from Caſes into the Ground near the great Trees, about three Years before the Year 1719, and thoſe were grown above three times as much as any Tree I ever ſaw grow in a Pot or Caſe in that Proportion of Time; as I judge from a Plant the Gardiner ſhew'd me, which he ſaid was of the ſame Term of Growth with the reſt, but was then a ſmall Tree in Compariſon with thoſe in the natural Ground.

The Conſervatory for theſe Plants in the Winter ſhould be a kind of Frame, which may be taken to pieces, and carried quite away in the Summer: The Expence of taking down and putting up ſuch a regular Frame as I mean, would not be equal to the Expence of Caſes or Pots, or even of the extraordinary Attendance the Trees would require if they were to grow in Pots; and much leſs expenſive would be a Frame of ſuch a manner than ſome Green-houſes: Beſides, as the Management of Orange-

Trees in Tubs or Caſes is almoſt as different as the Minds of the Gardiners who cultivate them; ſo if there ſhould happen an occaſion of changing a Gardiner, the Plants in the natural Ground would not be ſubject to ſuffer by a different Treatment; but thoſe Orange-Trees which are cultivated in Tubs, are too frequently ſpoil'd by the different Practice of different Men, as well indeed as moſt other Things in a Garden; ſo that it is to be wiſh'd a Gardiner might be conſtant in one Buſineſs.

If we have a Mind to cultivate Orange-Trees in the natural Ground, we may as well plant them in Walks, or in the Parterre, as any other Tree, only providing Coverings for them of Thatch, and four Pannels of double Straw Mattreſſes, or ſuch Materials to be fix'd to a Frame, as may keep their Roots and Shoots from the Froſt in Winter: For in ſome Parts of *Italy* and *France*, where the Froſts are more ſevere for the Time they laſt, than they are in *England*, ſuch Coverings or Shelters as I mention are us'd with Succeſs, opening them now and then when the Sun-ſhines, and when there is no Danger of the Froſts hurting their Roots. And we may be aſſur'd of this, that the Trees planted in the natural Ground will not ſo ſoon feel the Froſt, as thoſe in Tubs and Caſes; and an Orange-Tree will certainly, in this Caſe, do well, if we only keep it from the Froſt.

While I am upon this Head, I cannot help taking Notice of a very ingenious Contrivance for helping decay'd Orange-Trees, of Mr. *Philip Miller*, Gardiner to the Company of Apothecaries, at the Phyſick-Garden at *Chelſea*. His Way of reſtoring decay'd Orange-Trees, will add to our preſent Delight in cultivating them, and alſo afford us ſome Proofs of the Advantages which thoſe Plants receive, when they draw their Nouriſhment from a large Fund of Earth; which will appear to be much ſuperior to that which Trees can receive, when they are under the Confinement of a Pot or Caſe.

Mr. *Miller* tells me, that ſome Orange-Trees were once ſo disfigured by ill Management, that they were judg'd by ſome unlearned Perſons to be of little or no Value; but that he obſerv'd in them ſuch a promiſing Aſpect, that he reaſonably concluded, though they had then none of the moſt gay Appearance, they had Virtue enough in them to be improv'd and become valuable with a little Aſſiſtance; to this End, he thought it neceſſary to conſult their natural Mode of Growth, and treat them, if poſſible, in their own Way, as well with regard to Degree of Heat, as neceſſary Liberty; for the firſt he preſcrib'd a glaſs Caſe well expos'd, in which he directed a hot Bed of Tanners Bark, ſuch as I have mention'd under the Head of the Ananas, as order'd at *Richmond* by Mr. *Telende*; he prun'd their Heads, waſh'd and examin'd their Roots, and laid them in Water for a convenient Time, to make good the Loſs they had ſuſtain'd. When this was done he planted them in Baſkets of proper Earth, and fill'd up the Diviſions between them with the ſame Soil, which was a ſure Way of giving the Roots due Liberty of ſearching for their Nouriſhment; for the Baskets would admit of a cloſe Communication of the Roots with the Body of Earth, which was laid between them, and that Earth had no nouriſhing Quality in it that the Roots could not draw thorough the Baskets; the Conſequence was, the Trees for the moſt part made Shoots of two Foot, and ſome near three Foot long the ſame Summer, and produc'd Bloſſoms. I had once a Trial of the ſame kind, excepting only that my Plants were in Pots, and theſe were in Baskets; but, I confeſs, though mine grew well, yet they were not ſo vigorous as Mr. *Miller*'s, for I ſuppoſe my Trees wanted that Fund of Nouriſhment which gave the Trees, he mentions, their Excellence of Shoot; but beſides this Advantage to the Trees, the Baſkets they are planted in, if they are ſtrong, will prevent any Check at the Time of moving ſuch Trees to another Place, when otherwiſe they muſt have been baulk'd in their Health and Vigour.

## *To Mr.* R. S. *concerning the ordering of* Orange-Trees *brought from* Genoa.

*SIR*,

THE Orange-Trees I have ſent you, which came from *Genoa*, ſeem to be in good Health, their Bark is freſh, and the Shoots of the Head are ſtrong, full and green: I took them out of the Cheſt upon their Arrival, for fear of their getting the Muſt or Moldineſs, which might have injur'd them; and from the Day I took them out of the Cheſt, to the Time the Carrier went from *London*, I laid them upon the Earth in a ſhady Place in a Wood, which help'd to keep them in good Order, by the Correſpondence they had with the Effluvia or Vapour riſing from the Earth. I give you this Relation, becauſe when your next Parcel of Orange-Trees come to *London*, they may be treated in the ſame manner before they take a ſecond Voyage to your Country-houſe; and eſpecially if the green Shoots of the Heads of the Trees are any Way dried; for then by laying of the Trees upon moiſt Ground, where a moiſt Vapour is conſtantly flowing, they will recover and fill themſelves, ſo as to become fit for Vegetation; but when they are very dry in their Shoots, and by Way of Recovery they are immediately plung'd into Water, as the common Practice is, they are often overburden'd with watery Parts; which, though ſuch Treatment may make them appear healthful for a Month or two, it commonly ends in Sickneſs; for this ſudden Refreſhment only ſatisfies them for a little Time, but the gentle Refreſhings of the Vapour, which gradually fills their Parts, may be afterwards improv'd by laying them ſome Hours in Water. It is ſomewhat like the Caſe of Animals, who have been a long Time without Proviſions, and when they come ſuddenly into Plenty, overcharge their Stomachs, and ruin their Conſtitution; but when Creatures become thus half-ſtarv'd, we find, that if their Aliment is diſtributed to them by gentle Degrees, they recover their Health and Vigour.

But ſuppoſing the Trees to be in as healthful State as any that come from Abroad, we ſhould let both their Stem, Roots and Branches partake of the Moiſture or Vapour of the Earth, two or three Days before we plunge them in Water, and then to lay them three or four Hours or more in a Pond or River, according to their

Bigneſs, will prepare them for planting. When this is done, prune off only ſuch Roots and Shoots as are dead or wounded; and at every Wound, either in Wound or Shoot, lay on ſome ſoft Wax, or other ſuch ſoft Plaiſter, that the Circulation of the Sap may not be interrupted; but by no means cut off any of the live Roots or Wood, for that contributes to make the Tree ſhoot weak and ſickly, as I have experienc'd. The Trees I have had from Abroad, I have always planted with their Shoots on as they came over, though it was not agreeable to the common Practice; and in three Years Time, they have made extraordinary Heads, far exceeding thoſe that were cut: But then the ſecond Year of their Growth, I prun'd off ſuch of their Shoots as grew diſorderly; for then the Trees had got Strength, and were more able to bear wounding, than in their firſt ſickly Year.

When they are prepar'd for planting, we may either ſet them in Baskets, and plunge the Baſkets in Earth upon a gentle hot Bed, or elſe ſet them in a well prepar'd Bed of fine Earth; or, according to Cuſtom, plant them in Pots, and ſet them in a hot Bed, or in a glaſs Caſe: But which ever Way we take, we ſhould ſhade the Stems and Branches from the great Heat of the Sun; for too much Heat of the Sun prevents them in their Growth.

The firſt Way I mention of planting in Baſkets is, I think, the beſt, and I recommend it to you before either of the reſt: But be ſure in houſing them in the Winter, allow them room enough.

You may prune them more when they have gather'd Strength. I am,

*Sir,*

*Your moſt humble Servant,*

R. BRADLEY.

## *A Remedy for* Orange-Trees, *and other Trees, that are troubled with ſlipping off their Bark.*

A Curious Gardiner ſends me Word that he has large Orange-Trees, which, from Time to Time, fling off their Bark in Flakes of about a Foot long; the Diſtemper ſhews itſelf by a Speck of Gum iſſuing out of the Bark, and in a ſhort Time after, the Bark flies from the Wood; and at the ſame Time great Numbers of ſmall black Inſects are diſcover'd between the Wood and Bark. What is the Remedy?

The Method I propoſe to Remedy this Evil, is, firſt, to cut the diſtemper'd Bark from the Wood, till there is nothing to be diſcern'd in the Wound, but Health and Freſhneſs, without any Spots, then waſh the bare Wood with Water, wherein Tobacco Stalks have been boil'd: Let the Water at that Time be a little warm.

To prepare the Water; take about one Pound of Tobacco-Stalks, and boil it for this Uſe in a Gallon of Water, about a quarter of an Hour: It is a ſovereign Remedy againſt Inſects, and eſpecially thoſe in the Bark of Trees, as well as thoſe in Skins of Animals.

When this is done, take ſome Camphire, beat very ſmall, and apply the Powder to the naked Wood, two or three Inches above and below the Inciſion; which may be done, by dipping a Linen Cloth in melted Bees-Wax and Rozin, and, while it is warm, ſtrowing the Powder upon it; and then immediately applying the Plaiſter to the Place, and binding it on with Baſs upon the diſtemper'd Part; this will deſtroy even the Eggs of thoſe Inſects, and when it has been on about a Year, take it off; and then you may uſe Cow-dung, if you pleaſe, to ſupply the Place. The two Ingredients, which I mention in this Caſe, have deſtroy'd many kinds of Inſects that infeſt Plants; and from the Experience I have had of them, I doubt not, but this Preſcription will have a good Effect upon this Diſtemper of the Orange-Tree. When this is done, we may water the Heads of the Trees now and then, with an Infuſion of Tobacco-Stalks in Water.

## *Of propagating the Lemon and Orange-Tree by Layers, and of a new hot Bed, &c.*

### *To Mr.* Bradley.

*Oporto, Octob.* 22, 1723.

*SIR,*

I Return you many Thanks for your acceptable Letter of *Auguſt* 17, *O. S.* with your farther Directions in the Culture of the Pine-

Apple, which, as near as poſſible, I ſhall obſerve. Of three Thermometers ſent me over, two have unfortunately been broke in the Voyage; that which eſcap'd, was what you had mark'd the Height of the Spirit, *London*, *May* 2. I have made diverſe Obſervations by it; ſometimes I had in the Morning near fifteen Degrees leſs Heat than at Noon; and the hotteſt Days this Year, at Noon, the Spirits roſe to the very Top of the Tube, that it was impoſſible to make any Obſervations. I plac'd another Thermometer by your's, which came from *Holland*, and had the Degrees mark'd on it; and though it was fix'd in a good Dial-board a quarter of an Inch deep; yet I found likewiſe, that the Sun had too great an Influence on the Spirit, and made it riſe too high; that I am of Opinion, ſeeing thoſe Thermometers require to be hung out in the Air, the Tube of them ſhould be ſo fix'd, to hinder the Power of the Sun, elſe there will be no Rule. Our Summer this Year has been exceſſive hot; thoſe that have liv'd in *Brazil*, confeſs we have had for ſome Days as warm Weather here as they. Our Summer Seaſon has laſted longer than uſual this Year, there having fallen no Rain till to Day for ſeveral Months; but however, the Weather with it continues ſo warm, that the Thermometer remains at 35 Degrees; and, I am of Opinion, the coldeſt Seaſon here, when we have ſmall Froſts, is never more than 50 Degrees; but of this I ſhall be a better Judge, by the Obſervations during the Winter Seaſon.

In the Management of the Pine-Apple this Year, I have been oblig'd, in the greateſt Heats entirely to unſhelter the Plants, elſe the Sun would have ſcorched them up: One of them this Summer was very ſickly, and had like to have dy'd; but about two Months ago I took the Plant out of the Pot, and planted in the Earth, which was heated at the Bottom with a little freſh Horſe-dung, which has recover'd it; the other has ſhot very vigorouſly, and I doubt not, but, with Care, to ſee Fruit from it the next Year. I thank you for your Advice concerning the Uſe of dry'd Sea-Sand. I am now about making my Winter Frame for the Ananas, and deſign it in the following manner: To make it four Foot deep, the firſt two Foot to be the hotteſt Dung well ramm'd in, upon that a Foot and half of Sea-Sand, dry'd and heated as you order, and the upper ſix Inches, in which the Pots are fix'd, of dry Cork Duſt when it is burnt, which is of a very hot Nature. The Tanners in this Country make uſe of the Bark of the Cork Tree in their Buſineſs, which is what Bark remains to the Tree after the Cork is taken off; but there are ſo few of them, that it is difficult to get enough; however, I ſhall make a ſmall Experiment of it as to Heat. The Ananas laſt Year thriv'd well enough in a hot Bed only, during the Winter. We want thoſe Things you can eaſily procure; but however, Nature in ſome Meaſure ſupplies it through the Goodneſs of the Climate. I am glad you deſign to try the laying of Orange-Trees in the Ground, I am aſſur'd it will ſucceed: Our Way of increaſing Lemon or Orange-Trees is by earthing up a Branch, and peeling off a little of the Bark of that Part of the Branch which is in the Earth, to make it ſtrike Root the ſooner; by thoſe Means, when it has got Root, the

Branch which is remov'd makes a good new Tree, although it has Bloſſoms, and green and ripe Fruit upon it, for the Lemon-Tree bloſſoms and bears all the Year throughout: The Way of budding and graffing thoſe Trees on wild Stocks is found here too tedious. As Lemons of late Years here have bore a great Price, it has induced the Owners to endeavour to propagate and increaſe that Fruit as much as poſſible: The largeſt and faireſt Fruit of that ſort, is graffed on a Citron Stock. I am truly,

*SIR,*

*Your obliged humble Servant,*

John Clarke, *Jun.*

The foregoing Letter furniſhes us with ſuch Obſervations as my Reader could not excuſe my paſſing by, in a Work of this Nature, which aims at the Good as well as the Amuſement of the Curious; and though the laying of Orange and Lemon-Trees is in this firſt publiſh'd, yet conſidering the Reaſon of the Thing, I wonder it has not been practis'd generally before this Time; for almoſt every one knows, that laying a Branch of a Tree in the Ground, will occaſion it to ſtrike Root; and then, why ſhould the Orange and Lemon-Trees be alone neglected? for had it been try'd, I am convinc'd it would have been ſucceſsful, not only from the Aſſurance given by the curious Gentleman who gives us this Letter, but from the Experience of *William Thornton*, Eſq; at *Bloxham* in *Lincolnſhire*, in whoſe Gardens, among many other fine Experiments of his, I found this Method us'd ſucceſsfully; but this Gentleman abounds ſo much in Rarities of this kind, as well as new Improvements in Husbandry, that to mention them as they ſhould be, would almoſt make a Volume of themſelves; and had it been my Fortune to have known the Maſter of ſo happy a Genius, I doubt not but to have found as much Improvement from his Converſation; for *Opus Artificem probat*; but this *en Paſſant.*

# CHAP. VIII.

## *Of the Improvement of Flowers, in an Account of Ranuncula's rais'd from Seeds by Mr.* William Potter, *Gardiner, at* Mitcham *in* Surry. *In a Letter to* J. S. *Eſq;*

*SIR*,

WHEN I laſt had the Happineſs of your Company, you deſir'd I would, as Occaſion offer'd, ſend you an Account of ſuch Curioſities as occurr'd to me in the Way of Gardening; and I have now the good Fortune of acquainting you with one of the moſt ſurprizing Productions of Nature that I have ever met with, either at Home or Abroad, and, I doubt not, but it will be the more acceptable to you, as you are a Lover of Flowers.

I was lately at *Mitcham* in *Surry*, to view a Collection of ſeedling Ranuncula's rais'd there by Mr. *William Potter*, a Gardiner, having firſt heard of their Excellence from ſeveral of our beſt Judges, who had ſeen them in the Strength of their Bloom. I confeſs, among all that I have ever ſeen of the Ranunculus kind, I have yet never met with any that were ſo agreeable to me, either in Beauty of Colours, Variety of Make, or Largeneſs of Bloſſom; and though there are many hundred diſtinct ſorts of them, I am yet puzzled to ſay which of them pleas'd me beſt: There are many of them which have all the Properties that we could expect in a good Flower; and the others are ſo widely different from whatever has been ſeen in *England*, that they ſhine in ſuch Properties as my Knowledge of Flowers could never give me Hopes of expecting; in a Word, they are *Nonpareils*, and deſerving of a much better Character than I am capable of giving them.

Their Colours are of all ſorts, in ſeveral Degrees, from the cleareſt White to the darkeſt Purple, but the Azure-blue is only wanting, to carry them through all the Colours, to the deepeſt Black. Some of theſe Flowers are of one Colour alone, others with their Petals or Flower-Leaves, ſtrip'd with various Colours which mark quite through, as the Carnations do, which are call'd *Flakes*. Some are powder'd or pounc'd with the gayeſt Colours, like the Carnations called *Picketees*. Others again are ting'd on the Edges with Varieties of Colours; and ſome have their Centers ſtain'd with Colours directly oppoſite to thoſe of their other Leaves.

As for the Make or Figure of theſe Flowers, there are ſome ſhap'd like the Ranunculus, call'd the *Turks Turbant*, and ſuch ſorts as we have uſually cultivated in our Gardens, extreamly double, and blow very tall; others take the Form of Roſes of ſeveral kinds, and have their Flower Leaves of that Shape, and diſpos'd in that manner. Some again are ſhap'd like the *African* Marygold, and others like the *French* Marygold, even reſembling theſe in their Colours. Some flower like double Anemone's, and others like the fineſt double Poppies, bringing Bloſſoms as large as Peonies. Some are of a Star-like Figure, and others turning their Leaves back, ſo as to form the Figure of a Globe: And there are many of ſuch odd Figures, that I know not what to compare them with.

The greateſt Part of theſe Flowers blow near two Foot high, and branch liberally from the Root; ſo that it is not rare for one Root to bring near forty Flower-Buds to bloſſom with good Strength: The manner of their Growth, and bringing their Bloſſoms, is much like that of the great yellow Ranuncula's of the Meadows, which hold in Flower near three Months, and are very hardy.

Many of theſe are Semi-Doubles, which bear Seeds that ripen well, and come out of the Ground with little Trouble; and ſome of theſe are extraordinary, for having their Seed-bearing Veſſels of a bright yellow Colour: But it is an endleſs Work to mention every remarkable Difference in them; you ſhould ſee them, to admire them enough.

Though the Original of theſe Flowers came from *Perſia*, I find the Offspring are very hardy, and reſiſt the Froſts, even better than our old ſorts of Ranuncula's, and will flouriſh any where, if the Ground be rightly prepar'd for them.

The natural Soil in Mr. *Potter*'s Garden is pretty light, with a gravelly Bottom; but his Flower-Beds are made with the following Mixture, which he gives me leave to mention, that every one may have the ſame Succeſs that he has had, in blowing this ſort of Flower. It conſiſts of rotted Leaves, rotted Wood, Cow-dung, Horſe-Dung, and ſome of the Surface of the natural Earth; which he gathers altogether by the Side of a Wood, into an Heap, and ſifts very fine for his Beds, after it has lain together for ſome Time. And when theſe are prepar'd, he plants his Roots about *Michaelmas*, ſo as to bury the Bud of the Root about two Inches and half deep. When they begin to come out of the Ground, we may ſhelter them in froſty Weather with Mats; and, as they begin to riſe, cover the Bed with a freſh Coat of the aforeſaid Earth, about half an Inch thick; which will greatly ſtrengthen the Roots, and eſpecially help the new forming Roots or Off-ſets: But this muſt be done carefully, without injuring the Leaves or their Stalks; for every bruis'd or broken Stalk injures the Root, till the Plants come to flower, and even then too, if the Bloſſoms are frequently crop'd. There is one Reaſon in particular for the coating the Beds with a little freſh Earth, which is, that the Ranunculus Root which is put into the Ground, always produces its Off-ſets near an Inch above it, and as they grow, the Mother-Root decays; and even theſe new Roots help the good bloſſoming of the Plant, becauſe they join with the Flower-Stalk, and help to nouriſh it, as well as receive Nouriſhment from it; and therefore this freſh Earth helps both them and the Flowers.

Now, when I conſider that your Soil is very ſtrong and binding, I ſhall take the Freedom to offer you a little Advice from my own Practice, in a Soil which was ſo ſtiff, that it was judg'd fit for nothing but making of Bricks, and even upon ſuch a Soil I had extraordinary Succeſs, in the Culture of Ranuncula's, though it is ſuppoſed by many, that a Clay Country will not blow a Ranunculus, or even ſuffer it to live, although the Beds are prepar'd with proper Soil. I confeſs, was the common Method of preparing Beds in ſuch a Soil to be follow'd, we muſt expect the Roots to be deſtroy'd, or to produce very weak Flowers; for the uſeful Way of making usual theſe Beds, is to dig deep Trenches in this clay Ground, and fill thoſe Trenches with good light ſifted Mould, which Practice I find to be wrong; for if we once dig Trenches in clay Ground, they ſerve only to receive and hold all the Water that falls; ſo that the fine Earth which is put into them becomes a perfect Bog, which corrupts and chills the Roots, although they are planted ſomewhat above where the Surface of the Clay reaches; yet this muddy and ſtanding Water at the Bottom has ſurely an unwholeſom Vapour which riſes from it; and the Earth, in the upper Part of the Bed, is kept ſo continually moiſt by the Wet below, that a Ranunculus cannot, by any Means, endure it; and I have experienc'd, that the beſt Drains that can be made from theſe ſort of Beds cut in Clay, will not ſufficiently drain them of the Wet they receive, even though the Ground lies upon a hanging Level. I therefore find it adviſable in ſuch Ground, only to take off the ſuperficial Soil which covers it, three or four Inches deep, without entering the Clay, and then lay a little Coat of Sea-Coal Aſhes, or for want of them, ſome Lime Rubbiſh, and upon any of theſe, to raiſe my Bed about nine Inches or a Foot thick, with good prepar'd Earth, ſuch as I have mention'd above, or as I us'd to do about one third Part ſandy Loam, as much old Melon Earth, and the reſt rotted Wood and Leaves; but theſe muſt be well mix'd together, and ſifted before we uſe it. But I have had very good Succeſs likewiſe in making my Beds for Ranuncula's of Mould that I have taken out of great Woods; I mean the Parings of the Surface, which has been chiefly rotted Leaves and Wood, that has lain there, I ſuppoſe, many Years. The Reaſon I choſe that Soil, was, becauſe I obſerv'd the common Ranunculus call'd *Pilewort*, grew and proſper'd in it wonderfully: And a Gardiner at *Acton*, who made his Ranunculus-Beds of old Tanners-Bark, had his Ranuncula's proſper ſo well in it, that he had ſeldom leſs than eight or ten Roots Encreaſe, for every one he put into the Ground.

I muſt obſerve likewiſe, that the Paths or Alleys between theſe Beds ſhould be fill'd up with Sea-Coal Aſhes, or Lime, or Brick-Rubbiſh, or Sea-Sand, to draw the ſuper-abundant Moiſture from the Beds, and keep the Ground about them as dry as may be; or elſe, if theſe are difficult to be had, we may lay the Alleys with Graſs-turf, which will likewiſe help to keep the Beds dry in the Winter, which the Ranuncula's require. The raiſing the Beds thus upon the Top of the Clay, will ſuffer the Wet that falls to paſs away without incommoding the Plants, and you may then expect a good Shew of Flowers. I have known this kind of Flower blow extreamly well under a South Wall. I am,

*SIR,*

*Your moſt humble Servant,*

Richard Bradley.

## CHAP. IX.

### *Seventy ſix Obſervations and Experiments concerning* MANURING, PLANTING, GRAFFING, *and* PRUNING *of Trees, with the beſt Method of gathering and preſerving the Fruit, by* J. M. *Eſq;*

THOUGH we frequently meet with good Inſtructions concerning the Culture of Fruit-trees, yet it is obſervable, that every Day produces ſome improving Diſcovery among the Curious. In the Time of my Practice I have pick'd up the following Remarks, which, I think, will be of Service to every one who is a Lover of good Fruit.

#### *Obſervation* I.

If any Branch in the middle of the Tree riſes with too much Luxuriance above the reſt, in full ſappy Wood, we muſt cut it off cloſe to the Body of the Tree, but with Regard, we do not injure the Bark of the great Wood we take it from; for ſuch a Wound would endanger the Health of the Tree, the wounded Part would be a long Time recovering, and be ſubject to canker.

## *Obſervation* II.

We likewiſe muſt obſerve, that *Trees ſhould be pruned but once in a Year*, which I know is very contrary to common Practice; for there are too many People who are never without their Knife in their Hand; the continual Pruning makes a Tree ſhoot into falſe Wood, and miſcarry of its Buds deſign'd for Fruit; it interrupts the free Paſſage of the Sap to ſuch Buds, by diverting it to ſupport the wounded Parts of the Tree, and ſo we loſe the Benefit which would ariſe from the preparing Buds for Bloſſom, which otherwiſe might have been fruitful the ſucceeding Year. The Reaſon why Trees ſhoot more in Wood when they have been largely prun'd, than they did before, is becauſe the Root had fill'd itſelf with Juices proportionable to the Nouriſhment its ſtanding Branches requir'd; but when many of them are cut away, the ſame Fund of radical Juice goes to the Nouriſhment of the remaining Buds, that otherwiſe was deſign'd to nouriſh as many more, perhaps: So that then we may ſuppoſe, if the Balance was equal between the Buds cut off, and thoſe remaining upon the Tree, the remaining Buds might juſt produce the ſame Weight of Wood, that the Shoots of that Year would have done, had the Tree not been prun'd.

## *Obſervation* III.

When a Tree is in good Order, we muſt take Care not to prune it too cloſe, or take away too much Wood within Side, as ſome are too apt to do, leaving a Dwarf ſometimes naked within: It is however neceſſary to allow Air between the Shoots which come from the middle, in proper Places, for the better Admittance of the Sun to ripen the Fruit; and in this Caſe we may Remark, that we may allow the Shoots of a Dwarf-Tree more Air in a ſtrong wet Ground than in a light ſandy Ground, which by its natural Warmth, gives Colour and Taſte to thoſe Fruits, which in wet cold Ground would be inſipid and good for nothing.

## *Obſervation* IV.

The fourth Obſervation is, that Winter Fruits ſhould have their Shoots left wider aſunder than the Summer Fruits; the latter not wanting the Sun as the others do, therefore may be left pretty full of Wood. We may likewiſe Remark, in the pruning of Trees, that ſuch as have made weak Shoots ſhould be prun'd betimes, in *January* the lateſt; for pruning draws the Sap: But thoſe Trees which are very vigorous ſhould be prun'd late in the Year, *i. e.* in *April*, or even in *May*, they will bring leſs Wood and more Fruit.

### *Obſervation* V.

We muſt conſider the Climate where we live, that we may direct our Practice according to the Degree of Cold or Heat; in hot Countries the Fruit muſt be gather'd ſooner than in the colder Climates, becauſe the Sap has perform'd its Work ſooner; and the contrary in cold Climates, Fruit muſt hang longer upon the Tree to ripen; it will keep longer, for with me it is a conſtant Rule, that the longer Fruit can draw the Sap, the longer it will laſt; and it is the ſame in Nature, when we ſpeak of pruning, or of a Plant, or the Culture of Trees, which we would forward or retard: We ſhould gather Fruit after a Froſt, for then we are ſure the Sap does not help them.

### *Obſervation* VI.

In gathering of Fruits, it ſhould be done with a great deal of Diſcretion and Patience, taking Care that we do not deſtroy the Bloſſom-Buds which are near them, or are join'd to them; for the Buds are fram'd for the Fruit of the next Year when we gather our Fruit. Apples are much harder to gather than Pears, being more cloſely faſten'd to the Tree, and their Stalks much ſhorter than the Stalks of Pears.

### *Obſervation* VII.

In hot dry Years, if the Seaſon is hot about Autumn, *i. e.* in *Auguſt* and *September*, our Fruits ſhould be gather'd about the beginning of *October*, rather than leave them upon the Tree.

Tree till the End of the Month; for ſuch Fruit as has had a large Share of ripening upon the Tree, laſts but little, and is very ſubject to rot; but if *Auguſt* and *September* be wet and cold, then let the Fruit hang upon the Trees till the End of *October*, and they will keep well. This I account one of the moſt material Obſervations relating to Fruit, though few Gardiners make any Account of it; therefore I would have every Gentleman, who is a Lover of good Fruit, to obſerve the Courſe of the Seaſon, and gather his Fruits accordingly; for if this is not regarded, the whole Labour of the Year is uſeleſs; all our Expence and Care is vain; our Charge and Trouble is to get good Fruit, and if we do not conſider it at the Time of Harveſt, we loſe all. We muſt be likewiſe careful to know our ſorts, that we may not loſe them in their Seaſon, and without Occaſion ſuſpect our Fruit-keepers; but without an exact Catalogue of our Fruits and Seaſons, we cannot do this; and I think therefore, if the Name of every Fruit was written upon ſome Board plac'd over every Tree in a Garden, and the Time mark'd of its Ripeneſs, one might be very eaſy on this Score, and prevent any one that can read, from gathering a Fruit before its Time; which is too frequently done in Gardens, to the Diſpleaſure of the Maſter, and the Diſtaſte of the Gatherer.

## *Obſervation* VIII.

When a Tree is full ſet of Fruit, and we rather covet ſuch as are fair and good, than a large Number of ſuch as are indifferent, we may with a pair of ſharp Sciſſars cut off thoſe which are moſt weak and ſickly about the middle of their

Stalks, which will prevent the weeping or loſs of the Sap: And if the Tree in its firſt or ſecond Sap tends to ſhoot Abundance of falſe Wood, it muſt be pinch'd off while it is tender, but never cut while the Sap is flowing; for by cutting the Tree then it would run into Wood, and the Bloſſom-Buds, which the ſecond Sap would fill, would thereby be diſappointed and miſcarry.

*N. B.* The Bloſſom-Buds, I ſpeak of, are form'd by the firſt Sap, *viz.* between *April* and *June*, and are fill'd by the ſecond Sap, between *July* and the beginning of *October*, for opening and bearing the following Year.

### *Obſervation* IX.

Before we prune our Trees, we muſt conſider their Strength, and in proportion to that, we muſt cut them into Shape, as well as for bringing good Fruit. It is an Opinion ſtill prevailing among ſome People, that if Trees are weak, they muſt be cut in the Increaſe of the Moon, to make them give us ſtronger Wood; and when they are very ſtrong, they muſt be cut in the Time of the Moon's Decreaſe, to make them bring Abundance of Fruit and leſs Wood: But let every one uſe his own Judgment in this Caſe.

### *Obſervation* X.

We find that ſome Trees are more apt to ſhoot into Wood-branches than others; when we meet with ſuch ſtrong ſhooting Trees, we muſt prune ſo as to leave the Shoots long, and according

ing to their Strength, let their Shoots remain longer or ſhorter; but thoſe Shoots which have Bloſſom-Buds upon them in any great Quantity muſt be ſhorten'd, that the remaining Buds may nouriſh their Fruit the better, and the Tree make good Wood.

## *Obſervation* XI.

It is neceſſary in the firſt or ſecond Year after the Tree is planted to prune very ſhort, to make it ſhoot or fling into Wood; and if in the ſucceeding Years it does not happen to come into a bearing Way, but ſtill keeps ſhooting ſtrong and unprofitable Branches, as is common with the *Rouſſelet*, the *Bergamotte*, the *Virgouleuſe*, and ſome others; then if we prune at all, leave every Shoot very long; or rather leave ſuch Trees without pruning, for then the Tree will certainly ſet to bearing, and the Sap will not ſpend it ſelf to no Purpoſe; but when thoſe long Branches are knotted with bloſſoming Buds, we may break off a convenient Number of them, according as thoſe Branches are more or leſs in Strength. Of all the ſorts of Pears, there is no one which will bear pruning ſo ſhort as the Winter *Bon Chretien*; for then it will give large Wood, and upon that we may expect large Fruit.

## *Obſervation* XII.

About *May* we ſhould begin to top and pinch off the uſeleſs or too vigorous Buds of Trees, eſpecially ſuch as are in Eſpalier, or againſt Walls; for then the uſeful Shoots will be better nouriſh'd.

### *Obſervation* XIII.

When we prune a Dwarf-tree, we muſt take care that its Shoots and Branches on every ſide be rightly balanced, and equal as may be, leſt the Winds have Power enough over it to ſtrain the Roots, or overſet it.

### *Obſervation* XIV.

We muſt likewiſe take care in the pruning of Dwarf-trees, not to leave any Branches or Shoots too near the Ground; for whatever Fruit comes upon them, has little taſte, and quickly rots.

### *Obſervation* XV.

In pruning Trees we muſt have Regard to the Soil and Climate; if it be wet and cold, the Fruit is green and leſs in its Colour, and conſequently is not ſo well flavour'd: In this Caſe the Shoots of a Tree muſt be prun'd free and open, that the Rays of the Sun may paſs freely between them; but in light ſandy Grounds, where Fruit is always good, though it is ſmaller than in the former Lands, the pruning is very different; it ſhould be very little or not at all in Pear-trees; for in very hot dry Land, the Wounds made by pruning recover with Difficulty, and in the drieſt Lands, I have ſometimes known Pear-trees to periſh entirely by over-pruning.

## *Obſervation* XVI.

When a Tree looks yellow, pluck it up, without troubling your ſelf to prune or amend it with extraordinary Culture; for though it may keep alive for two or three Years by judicious Management, it will then be fit for no Uſe; and if we had pull'd it up at firſt, and planted a freſh Tree in its Room, we might have had good Hopes of Fruit. But if our Caſe be that the ſick Tree is of a ſcarce or rare kind, and it is worth looking after, we may lay about the Roots Mud that has been well turned and aired, ſo that it is become good Mold, and it may recover its Strength; or elſe Hog's Dung may be us'd in the ſame Way; it enlivens ſuch Roots as have been two much burnt and ſcorch'd by Horſe-Dung.

## *Obſervation* XVII.

If we find that Pears upon Quince Stocks do not thrive in the Place where we have planted them, we muſt change them for free Stocks; and if thoſe ſhould grow yellow, we may try Apples in their room; and if we have not then hit upon the Humour of the Soil, we muſt try other ſorts of Fruit, till we find what will beſt proſper in it; for unleſs the Tree and the Soil agree, all our planting and pruning is to no Purpoſe.

### *Obſervation* XVIII.

The Pear-tree likes to be planted ſhallow, eſpecially in ſuch Lands as have gravelly or ſtony Bottoms; in ſuch Caſes we muſt plant upon the Surface, that the Roots may ſpread. In great Heats we may lay Fern or Straw over the Roots of Pear-trees, which will help the Tree extreamly in its Shooting.

### *Obſervation* XIX.

When we make our Plantation, ſhorten the downright Roots of the Trees, that the remaining Roots may ſpread rather than ſhoot downwards. If the Tree is young, we may leave the top Root longer, than if it was five or ſix Years old.

### *Obſervation* XX.

Every curious Perſon in Fruit, ſhould always keep by him a good Number of free Stocks to help his Plantation with; but ſuch a Nurſery ſhould be rais'd from Kernels: The Suckers taken from about the Roots of Trees are good for nothing.

### *Obſervation* XXI.

We ſhould likewiſe provide a Nurſery of Quince Stocks, which are beſt rais'd from that ſort of Quince whoſe Wood is the browneſt, the Leaves large and round, and velveted on the Back. This kind brings the ſtrongeſt Plants, contrary to that which is call'd the male Quince;

which one may eaſily diſtinguiſh in the Nurſery, by its languiſhing Appearance, and ſmall Shoots. Its Sap is always more ſour than the others; and if one was to graff upon ſuch Plants, the Graffs will hardly hold; the beſt Way is to pull them up, and plant others in their Place.

## Obſervation XXII.

When we graff a young or old Tree where Fruit was not agreeable, we muſt graff it upon every Arm or Branch as equally as poſſible; for if we were to leave ſome of them ungraffed, they would draw away the greateſt Part of the Sap, and rob the Graffs, I mean ſuch as are graffed in the Cleft; for budding or inoculating a Tree does it no harm; but a Bud will ſhoot and thrive as well as any other Part of a Tree.

## Obſervation XXIII.

When our Nurſeries are compleat, we muſt take all poſſible Care, when we are about tranſplanting our Trees, either for Standards, Dwarfs, or Eſpaliers, that the Roots are not injured by taking up; the Holes for theſe Trees muſt be made as large as poſſible, and the Ends of the Roots cut very ſmooth, which will diſpoſe the Tree to ſhoot the better: Let none of the ſmall Fibres remain, for they are apt to rot and infect the great Roots.

## *Obſervation* XXIV.

When we plant a free Stock, Quince Stock, or other Wilding in any Place, to be graffed the following Year, take the ſame Care as you would do in planting the fineſt Fruit. I know this has been often neglected, though it is the Foundation of our Work; and when it has not been regarded as it ought, the whole Deſign has ſuffer'd.

## *Obſervation* XXV.

When we tranſplant any Tree, obſerve to plant that Side towards the South, which ſtood before to the South; and we muſt do what we can to defend the Wound made by graffing from the Violence of the Sun.

## *Obſervation* XXVI.

In dry ſandy Ground plant Trees in Autumn, and in moiſt and watery Places plant in the Spring; for elſe the Water, lying about their Roots all the Winter, would chill and periſh them, eſpecially ſuch as make tender Wood, as Plums, Cherries and Peaches. The Pear and Apple are more hardy in their Wood, but yet more ſubject to be deſtroy'd by Water. It is good in moiſt Grounds to open the Holes for Trees the beginning of Winter, and ſo let them remain till Spring before we plant, for the Froſt will mellow and enrich the Soil taken out of them, and prepare it for Spring-planting. Where the Soil is light and ſandy, and not ſubject to Inundation, plant your Trees about the beginning of *November*, and they will gain Fibres enough to ſupport them before the Froſts begin, and will ſhoot with reaſonable Strength the Spring following, and with much more Freedom than thoſe Trees which are planted that Spring. Obſerve alſo, that all Trees graffed upon free Stocks muſt be planted in light dry Grounds, and the Graffs upon Quince Stocks in ſtrong wet Grounds.

## *Obſervation* XXVII.

Graff thoſe Pears which have a *Beurée*, or melting Fleſh, upon Quince Stocks, but ſeldom or never uſe a Quince Stock for the dry Fleſh Pears; for the Juice of the Quince, which is harſh, dry and rough, adds to the Dryneſs of thoſe Fruits graffed upon it; but the Share of that Dryneſs, which the Graffs of the melting Pears can take from the Quince Stock, helps ſuch Fruit in its keeping; for all Fruits which are graffed, are influenc'd in ſome meaſure by the Juices of the Stocks they are graffed upon.

## *Obſervation* XXVIII.

In graffing upon Quince Stocks, we may obſerve, that the *Portugal* Quince is preferable to any other kind; its Sap is ſtrong, and the Graffs upon it bring large Fruit: This ſort of Quince has a fair tender Fruit, which, in a good Year, may be eaten raw.

## *Obſervation* XXIX.

I have remark'd, in the Way of Graffing, a Curioſity, which it is likely may be ſtill new among many Profeſſors of Gardening, and, I am perſuaded, it will give them Satisfaction. For Example, if we have a good bearing Tree, which runs ſo much to bloſſom, that the Shoots and Fruit are ſmall; if we take from the bearing Shoots of ſuch a Tree a few Buds, and inoculate them upon large vigorous Shoots of ſome other Pear-Tree, ſuch Buds will bear the ſecond Year, and produce very large Fruit, having plenty of Sap to nouriſh it; or if we put Buds of the leſs bearing Kinds upon good Bearers, ſuch Buds will ſo far be over-rul'd by the Nature of the bearing Tree, as to bring Abundance of Fruit: But on either of theſe Occaſions, it is neceſſary to aſſort our Fruits, and inoculate only Summer Pears upon ſome of the Pear-Trees of the ſame Seaſon. Autumn Pears ſhould be inoculated upon Autumn Pears, and ſo on; but never bud, or graff a Winter Pear upon a Summer Pear, for the Sap of the Summer Pear-Tree will decline before the Winter Fruit can come to its full Growth.

This Method of Inoculating will eaſe us of the Pain one has commonly when one comes to fix at any Place, *viz.* whether the Fruit of the Garden is according to our liking; for when we can have Fruit to our Mind in two, or at moſt three Years, by inoculating the beſt ſorts upon the old ſtanding Trees, we may be ſure of our ſorts without waiting till a new Plantation comes forward, and keep our Catalogue juſt and certain, that we may know when every ſort is in its Perfection; for without a Catalogue our Fruit-Trees are of little Uſe, the Pears eſpecially, we run the Hazard of murdering our beſt ſorts, or of giving them to the Hogs; as an Inſtance, I have ſeen St. *Germain* Pears, Winter *Bon Chretiens*, the *Colmar*, and other fine Winter Fruit ſent to the Oven in *October*, becauſe they were not then fit for eating raw; ſo for want of the right Knowledge when a Fruit is fit for the Table, they have rotted in the Fruitery, and been accounted of no Value. And again, we may add the Neceſſity of obſerving how long every kind of Fruit may laſt good; for I have known ſome People very angry with their Gardiner, becauſe the *Beurées* Pears did not laſt all the Winter; one eſpecially, who had a great many of that ſort, concluded he had been cheated of them, becauſe, as he obſerv'd, he had as many in Number as might have laſted him half a Year, if he had us'd a Dozen every Day. I therefore cannot help repeating, how neceſſary it would be to mark every Fruit-Tree with the Name of the Fruit, the Time of its Perfection for eating, and how long it laſts good, which might be painted in Letters at length, upon a ſquare Board, and faſten'd to the Tree; then would the Maſter know when to expect the ſeveral Fruits of his Garden, and when to make agreeable Preſents of Fruit to his Friends, and avoid that too common Cenſure, which is ſo often caſt upon the beſt Gardens, of having no good Fruit in them, becauſe the proper Seaſons of the ſeveral Fruits were not regarded; the Nurſery-men are blamed, the Gardiners ſuſpected, and the Gentlemen diſſatisfied, for want of ſuch Precautions.

In ſome Places, indeed, the Fruit-Trees are number'd, and Catalogues are kept of them; but the Trouble of examining the Number, and and from thence running to the Catalogue, incumbers the quiet Thoughts which one would wiſh for in a Garden; but the Way I ſpeak of would be no Trouble at all.

### *Obſervation* XXX.

But however the inoculating of old Trees may ſerve for a few Years, we ought to uſe the earlieſt Means to interplant them with young Trees, of thoſe which we like beſt, that they may be in a forward Way of bearing, as the old Trees decay; for a Tree will make us wait its own Time before it comes to bearing; and if we let this Work alone till our old Trees are quite decay'd, we muſt have a great deal of Patience before our Loſs be recover'd.

## *Curious Obſervations and Experiments relating to the Improvement of Peach-Trees.*

### *Obſervation* XXXI.

ALL Peaches rais'd from the Stone are ſo generous to the Climate where they are rais'd, that their Fruit ripens well while they are cultivated in that Climate. Some indeed may be worſe in Nature than others, but every one may preſerve the good, and fling away the reſt; and, I think, it would be of great Uſe to our Gardens, to fling out all the indifferent kinds of Fruit, that they may not rob us of good

Ground. I would have our Catalogues abridged, for, like great Societies, there are ten bad for one which brings good Fruit. Peaches thus rais'd from Stones hate a Knife, and it is no Matter how little any Peach is pruned: The Standards bring more pleaſant Fruit than Peaches againſt Walls, becauſe, as I ſuppoſe, the Sun takes them on all Sides; and then Standards are not ſo much under the Diſcipline of the Knife, as the Wall-trees, and therefore are free from Inſects, curl'd Leaves, weak Shoots, Blights (though more expos'd to the Winds) or to looſe Branches, as the prun'd do every Year. The free growing Trees are always healthful, but thoſe that undergo the Severity of pruning, either languiſh, or ſhoot to no Purpoſe. The Standards alſo bring their Fruit later than the Wall-trees, and furniſh us with Benefits when our Walls are vacant; but if there is any Occaſion of pruning the Standard Stone Fruit-trees, it is only in caſe they riſe too high, and then they ſhould be lop'd as we do Willows, and they will then ſend out large Wood, which will ſoon bring good Fruit, even the ſecond Year.

*N. B.* Upon the lopping ſuch Trees, the Wounds ſhould be immediately plaiſter'd with ſome Preparation of Wax, Tallow, *&c.* to prevent the Gum; but the cutting of the great Wood does not incline the Tree ſo much to Gum, as wounding the little Wood.

### *Obſervation* XXXII.

As the Peach is one of the moſt delicate Trees of our Garden, it muſt be diligently cultivated, and we muſt conſult its Soil, which for the good of the Fruit ſhould rather be light than ſtrong, and more dry than wet; the wet ſtrong Soil will indeed give large Fruit, but then it is watery and inſipid; and the light dry Soil, though the Fruit is not ſo large, yet is it better coloured and well flavour'd.

### *Obſervation* XXXIII.

The Peach chiefly covets the Morning or the Noon Sun, as the Fruit is diſpos'd to ripen more early or late, and thoſe which will bear in Standard or Dwarfs ſhould not be too rudely expos'd, but have ſome Shelter, otherwiſe our Expectations will be baulk'd, for the Tree is very ſubject to ſuffer by the Wind.

### *Obſervation* XXXIV.

A Peach may either be graffed upon the Almond or the Plum; and it would be well to conſider the Nature of our Soil before we chuſe which Stock to graff on; for the Almond loves a ſtrong Land a little wet, and the Plum chuſes a drier and higher Soil.

## *Obſervation* XXXV.

We ſhould ſet the ſweet Almond to raiſe Stocks from, laying the Almond about *Chriſtmas* in dry Sand to ſprout; and the *March* following, or in *April*, according to the Softneſs of the Seaſon, we may plant them at a Foot Diſtance in the open Ground; and if the Sprout or Radicle be then too long, it may be pinch'd ſhort, as our Judgment ſhall direct; and about *September* in the ſame Year, they may be inoculated in a dry time, obſerving, that the Bud be taken from a ſtrong Shoot of a Peach, and has three Leaves growing at it.

## *Obſervation* XXXVI.

All Buds will take better the firſt Year upon the Almond than the ſecond or third Year, becauſe the Stocks of the firſt Year are not ſo ſubject to gum, as thoſe that are older.

## *Obſervation* XXXVII.

If the Almond-ſtocks are large that one would graff or inoculate upon, we ſhould do it at the time of the ſecond Shoot or Midſummer Shoot, that the Bud may ſprout immediately, and not be ſuffocated by the Gum, which too often attends a Wound made when the Tree is in its full Sap.

### *Obſervation* XXXVIII.

There is a ſort of tender Almond which comes from *Genoa*, which is yet better to inoculate Peaches upon than the ſweet Almond before-mention'd; theſe Almonds ſhould not be laid to ſprout, but put into the Ground in the Spring, they ſhoot vigorouſly, and make a handſome Plant in a Summer.

### *Obſervation* XXXIX.

As Almonds will not eaſily bear tranſplanting without extraordinary Care, I would adviſe, that we ſet them in ſuch Places in the Nut where we deſign them to grow, and inoculate them there, without running the Hazard of tranſplanting.

### *Obſervation* XL.

The bitter Almond is by no means good to inoculate Peaches upon, though that ſort is more hardy, and will tranſplant better than the ſweet Almond.

### *Obſervation* XLI.

The pruning of Peaches ought not to be till the Bloſſoms are ſo much ſwell'd, that we can diſcover the bearing from the falſe Bloſſoms; which in ſome Trees may be done at the End of *February*, and others not till *March*.

*Note*, What is call'd a falſe Bloſſom, is a Male-bloſſom, which, from good Obſervation, proves to be differently made from thoſe Bloſſoms which bring the Fruit. Our Author ſays, we ſhould defer pruning, till we can diſcover which Bloſſoms are Male, and which otherwiſe; for, ſays he, the falſe Bloſſoms never bear Fruit, and therefore ſhould be cut off; but there was little of the Generation of Plants known when he made his *Memorandums*. I conceive, they are as neceſſary to be left upon the Tree as the others, and are of uſe to make the Tree bear as well as the falſe Bloſſoms of Cucumbers, Melons, Gourds, *&c.* which I have mention'd in my *New Improvements*; but, however, I think it neceſſary to delay pruning of Peach-trees which are tender, till the Sun has gain'd a little Strength, for they are too apt to ſhoot vigorouſly, and late pruning prevents their over Luxuriance; and ſhould we prune them when the Froſts have any Force, they would be endanger'd. But to return to our Author, who ſays,

## *Obſervation* XLII.

We may top the bearing Branches, or prune them according to their Strength, which is the Way to have good Wood and good Fruit; the ſtrongeſt Shoots may be left a Foot long, or more, and from thence we may expect good Wood to fill our Wall, which a Peach-tree often wants, and ſhould, as much as poſſible, be fill'd up with young Shoots, for it is them alone that bear Fruit. When a Shoot is of a middle Size, it is commonly furniſh'd with Fruit-Buds, and ſhould, according to its Strength, be ſhorten'd;

en'd; and the ſmalleſt Shoots, which have Bloſſom Buds upon them ſhould alſo be cut to convenient Length, that the Fruit may be large; for one or two good Fruit is worth five or ſix which have had ill Nouriſhment.

## *Obſervation* XLIII.

After the Spring-pruning of Peaches, the Trees muſt not be touch'd with a Knife all the Year, unleſs ſuch Shoots as cannot conveniently be laid to the Wall; the Spring-pruning being as much as a Peach-tree can ſuffer, without declining in its Health. I cannot by any Means agree with thoſe who cut down theſe Trees that are nurs'd againſt Walls once in four or five Years, to make them renew their Wood. A Tree ought to fill the Part of the Wall allotted for it, and it is the Fault of the Maſter if it does not, unleſs the Diſtemper lie at the Root.

## *Obſervation* XLIV.

If cloſe pruning be at all allowable, it is during the firſt two or three Years after planting, that the Bottom of the Wall may be well furniſh'd; and though this Pruning be often practis'd, yet it is not every where that we find the Effect it ought to have; for too many lead the Shoots upright, which ſhould be ſpread horizontally, and, by that Means, leave the Wall naked at Bottom; and, in a few Years, tell us, the Wall is too low for the Tree: This is a very great Fault.

In this firſt pruning, ſome are ſo favourable to ſpare the Branches which have Bloſſoms upon on them; but it is an unreaſonable Practice, for we never have a good and laſting Tree that is ſuffer'd to bear ſo early.

## *Curious Obſervations relating to the Improvement of Plums.*

### *Obſervation* XLV.

The beſt Stocks to be put in Nurſery for graffing upon, are the Off-ſets of the *Black Damask*, and the St. *Julian*, whoſe Sap is ſweeter than that of other Plum-trees, which is commonly too ſharp for Graffs to take upon; the Graffs, I mean, are in the Cleff, and not in the Bud, as ſome might conjecture.

### *Obſervation* XLVI.

The St. *Julian* Plum is indeed the ſureſt for budding upon, and the Fruit graffed upon it is more melting than thoſe graffed upon other Stocks; the black Damask has a drier Juice, and therefore the Bud is not ſo proper for it.

### *Obſervation* XLVII.

Plums require a Soil rather dry than wet, or inclining to Sand than Clay. A black Sand is the beſt of all for them; they bear ſooner and better, and bring their Fruit extreamly well taſted.

## *Obſervation* XLVIII.

We may cultivate Plums either in Standards, Dwarfs, or againſt Walls; the blue *Perdrigon* ſhould always have a Wall to prevent the ſhedding of its Fruit, which it is very ſubject to do in the free Air. This Plum loves the riſing Sun, rather than the Sun at full South; for the latter dries the Fruit too much, and makes it fall as ſoon as it is ſet.

## *Obſervation* XLIX.

In pruning of Plums, we muſt have great Regard to their Strength or Weakneſs; and as that is, to leave more or leſs Wood upon them, the large Shoots muſt be left of a good Length, and the middle Size Shoots muſt be left almoſt entire, that the Tree may bring Fruit ſoon; eſpecially we ſhould leave the Shoots of Plum-Trees very long in ſtiff heavy Soil, where they are apt to ſhoot too much and bear little; in that Caſe pruning cloſe would make them ſhoot in a rambling manner, or ſubject them to Diſtempers. Prune a Plum as little as may be in a clay, or wet Soil; wound thoſe Fruits which are enclin'd to gum as little as poſſible, among which is the Plum which is very ſubject to canker, and thereby diſtemper its whole Sap.

## *Obſervation* L.

For Standard Plums, we ſhould let them ſhoot at their Pleaſure, only minding to take away the falſe Wood and the Suckers from them; the falſe Wood may be diſtinguiſh'd from the reſt by its being long, thin, and of a greeniſh Colour.

## *Obſervation* LI.

When Plum-trees begin to decay and loſe their Shoots, we muſt cut them down a little above the Graff; they will re-ſpring with Strength, and bring us Fruit the ſecond Year.

## *Obſervation* LII.

Where we have to deal with Wildings in this Caſe, ſuch as the Damask, St. *Catherine Rochecorbon*, &c. we may leave a few of the Suckers about their Roots, but not too many, leſt we ruin the old Root; for every one of theſe Suckers draw from it, and impoveriſh it, till at length it is quite ſtarv'd.

## *Obſervation* LIII.

When we have ſtrong Ground, which ſubjects ſome of our Plums to run into Wood, I would adviſe, that ſuch as will do without Walls ſhould be twiſted about a Set of Poles, as I have mention'd before for Pears, for the bending their Shoots will check the Sap, and bring them to Fruit-bearing without pruning, and then they will not be ſubject to gum or ſpoil. I am ſo much enter'd into this Thought, that I have began to try Mr. *Heron*'s Experiment of twiſting of Trees thus; and, I hope, ſome few Months will ſatisfy me of its uſe to Plum-Trees, Peach-Trees, Abricots, and thoſe ſorts, which, if they are let alone, are apt to ſhoot with extraordinary Vigour.

## *Obſervations and Experiments relating to* Cherries.

### *Obſervation* LIV.

A Cherry requires a light ſandy Ground, which brings it to bearing ſooner, and makes it yield better Fruit, and in greater Abundance than it would do in ſtiff Land; at the ſame time, we do not ſay, that this Fruit will not bear at all in wet or heavy Ground, but where that happens, it is the moſt ſubject to drop its Fruit.

### *Obſervation* LV.

If we are minded to have dwarf Cherry-Trees, we ſhould not by any means graff them upon the wild black Cherry, but upon Cherries which are already graffed, chiefly the *Morello*; for the black Cherry is too ſtrong a Shooter, and the *Morello*, which is a wild kind, though we cultivate it by graffing, brings its Shoots with leſs Vigour, and bears ſooner and cloſer to the Ground; but for Standard Trees, the black Cherry makes the beſt Stocks for graffing, and brings its Fruit larger and better.

### *Obſervation* LVI.

We may graff Cherries in the Cleff, or inoculate them, but the laſt Way is much the beſt, when the Trees are in their *Midſummer* Shoot, and then we are not in much Danger of being injur'd by the Gum; but for graffing in the

Cleff, we muſt do that early in the Spring, that is, about *February*, or at the lateſt a few Days in *March*; it muſt be done before the Sap riſes, or elſe our Graffing is to little Purpoſe.

### *Obſervation* LVII.

Some have experimentally found, that a Cherry does better graffed in Autumn than in the Spring, and chiefly if we ſet our Graff near the Ground, the Graff then takes immediately, and is ſo fix'd, that the following Spring it ſhoots with extraordinary Vigour, abundantly ſurpaſſing thoſe that are graffed in *February* or *March*.

## *Obſervations relating to the* Abricot.

### *Obſervation* LVIII.

WE ſhall leave the Abricots commonly inſerted in our *Engliſh* Catalogues, and mention only two ſorts, which are very remarkable now in *France*. There is an Abricot all white without and within, which parts freely from the Stone, and is well flavour'd; about *Paris*, the Eaſtern Aſpect is better for it than the Southern Sun; the Stone is very ſmall, and the Fruit is almoſt as forward as what is call'd the *Maſculine Abricot* in the *Engliſh* Catalogues, eſpecially in dry ſandy Ground.

### *Obſervation* LIX.

What is meant by a male Peach, a male Plum, or a male Abricot, are ſuch Fruits as do not quit the Stone eaſily.

*Obſervation*

## *Obſervation* LX.

In *France* there is an Abricot much eſteem'd, whoſe Fleſh is yellow, and the Outſide redder than the others; it is ſaid to be one of the Males, becauſe it does not leave the Stone, the Shell of the Nut always adhering to the Fleſh of the Fruit; the Juice is extreamly good, and the Kernel is as delicious as the ſweet Almond.

## *Obſervation* LXI.

If we would have large Abricots, and a great deal of Fruit, we ſhould cut them down from Time to Time, whether they are againſt Walls, in Dwarfs, or in Standards, for they are very ungovernable; their Shoots are commonly more vigorous than any others, except thoſe of the Vine; and when they are againſt a Wall, or in a Dwarf, we are neceſſitated to prune them, or elſe they outgrow their Compaſs: But I find by Experience, that pruning of ſuch Wood has the ſame Effect upon Abricots, as it has upon Plums; and therefore, what can be decently left growing ſhould be ſpar'd till we cut down the Tree quite; but we are ſure of this, that the Abricot will ſhoot three times more vigorouſly in a Clay, than it will do in a dry Sand; I think a black Sand or heathy Ground the beſt for it; it will bear plenty of good Fruit there, and make ſmaller Shoots than in ſtiff Land; and therefore requires leſs pruning, and will live in better Health.

## *Obſervation* LXII.

An Abricot may be graffed upon a Plum-ſtock, or a Stock rais'd from an Abricot-ſtone; the laſt, I think, is the beſt, becauſe it is not ſubject to fling out Suckers from the Root.

## *Obſervation* LXIII.

If we are diſpos'd to bring our Abricots ſooner by a Fortnight than they uſually ripen, we muſt graff them upon Almond-ſtocks, or to keep them more backward in their ripening, we may put them againſt North-Walls; but thoſe which are expos'd to the North are not ſo well colour'd as thoſe which have other Expoſures; however, as the North Expoſure brings the Tree later into Sap than others, the Bloſſoms are in leſs Danger from the Froſts of the Spring. I have obſerv'd, that thoſe Abricots upon a North Wall bring their Bloſſoms about three Weeks later than the Trees that are expos'd to the South Sun.

## *Obſervation* LXIV.

The Syrup made of Abricots, being well mixt with Water, makes an excellent refreſhing Drink.

## *Obſervation* LXV.

Is concerning a Cherry-Tree which was made to bear Fruit in Autumn, as I have been inform'd by a Perſon of Credit, who told me, that in the Weſt of *England* there was a large Cherry-

Tree growing in a Farm-yard, which was ſo little regarded by the Owner, that when it was in full Bloom, that is, in *April*, he ſuffer'd the Boys to pick off the Bloſſoms, to make Garlands againſt ſome Wake or Fair which then happen'd in the Country, and, to his great Surprize, towards *Auguſt* the Tree put out freſh Bloſſoms, and the *October* following was full of Fruit, which, he ſuppoſes, happen'd from the Check that was given to Nature in the foregoing Spring, in pulling off the Flowers; by which means he judges, that the firſt intent of the Tree being ſtopp'd before the Juices had ſpent themſelves in the Fruit or Flower, the Tree became then of ſufficient Strength to perfect its Deſign in a ſecond Eſſay; and to act in Autumn, even with more Vigour than it would have done in the Spring.

I have practis'd the ſame deſignedly upon Raſpberries and Strawberries, and find, they will bring Autumn Fruit to perfect Ripeneſs; and have had more than once the *Morello* Cherry ripen'd with me about *November*, which, I ſuppoſe, came from ſome Check of the like Nature, either where the Spring Bloſſoms had been broken off, or had been deſtroy'd by a Blight: Nor is it uncommon for Pears to bloſſom about *Midſummer*, and ſet their Fruit, but they ſeldom come to Perfection.

## *Obſervation* LXVI.

The Vines of the *Canary* Grape will now and then put out ſecond Bunches of Bloſſom about *Auguſt*, but in the natural Ground in our Climate they come to nothing; I believe, nevertheleſs, with the Help of artificial Heat, they might be brought forward; for, I ſuppoſe, it is natural for this Vine to bear Fruit twice a Year in the hotter Climes, as I am told, that ſome do in the South Parts of *Italy*.

## *Obſervation* LXVII.

One Thing relating to Vines I ſhall take Occaſion to remark in this Place. A Friend of mine had a Parcel of Vine-Cuttings which he had kept without Earth for near two Months, and accidentally remembring them towards the beginning of this Month, put them all together into his hot Bed, where they had not been much longer than a Week before they made Roots, and began to bud. A Fortnight after, their Shoots were vigorous, and promiſing of making Branches of great Length, though he took them ſeveral Times out of the Earth to ſhew what Roots they had got. But there remain'd a Difficulty in tranſplanting them in due Time into proper Places; for as they were in Leaf, the common Ground would not be ſufficient to maintain them without Artifice; I therefore adviſ'd him to tranſplant them into Pots, and give them the Continuance of an hot Bed, hardening them by Degrees in the Summer, but with this Regard to the tender Roots, which were full, and of a whitiſh Colour, that they ſhould not have Time to dry before they were ſet in the Pots, nor ſuffer the leaſt Bruiſe; and I reaſonably imagine, they will make Plants this Summer fit to bear Fruit the next. But I have recommended this Experiment to ſeveral, who are now in the Practice of it; and, as Occaſion offers, I will give an Account of the Succeſs; the Pots I mention will ſecure their Tranſplantation without any Check at any Seaſon, becauſe they may be ſet in the common Ground, with the Earth about their Roots.

## *Obſervation* LXVIII.

Another Experiment I made in the Year 1720, to facilitate the raiſing of Vines from Cuttings, by means of common ſoft Soap; and I cannot help recommending it now in a particular manner to the Curious, that they may begin early enough. The young Shoots which appear in *May*, however tender they are, may be taken from the Vine, and after the lower Leaves are taken off, the whole Part which is to be ſet in the Earth, muſt be well ſoap'd and planted in a fine Earth made into a Mud by common Water, for the Water of Dunghills will deſtroy them; theſe will take Root in leſs than ſix Weeks in the common Earth. But, I believe, from the foregoing Obſervation, if they had the Aſſiſtance of a hot Bed, they would do Wonders, for Soap is of great Uſe to Vines, as I have already experienc'd; and what I have ſaid before, ſerves in Part to confirm the Benefit they may enjoy from a Heat well regulated. I ſhould however obſerve, that my Friend's hot Bed was cover'd with Virgin Earth, near ſeven Inches deep, and that the Bed work'd with Gentleneſs, and produc'd a natural Heat, which muſt be the Work of Judgment: But as that is not in the Hands of every one who pretends to the Management of hot Beds, which ſometimes burn, and ſometimes cool too ſoon under their unskilful Care, I ſhall give a Specimen of a Contrivance of the curious Mr. *Hall*, which will, at the ſame Time, keep a Bed from burning of Plants, and give us

Opportunity of ſhifting our Crop from Time to Time, from one Place to another, without Loſs.

The Gentleman, I mention, preſcribes a Hurdle to be made ſomewhat bigger than the Frame for the Glaſſes, ſo that it may be faſtned to the Bottom of it, that the whole Body of Earth which is neceſſary to lay in the Frame may lie upon the Hurdle, and be remov'd together with the Frame, from one hot Bed to another, as Neceſſity requires. The Hurdle, lying thus at the Bottom of the Earth, will keep it from burning or ſcorching, although the Bed ſhould fire, as the Gardiners call it, the Dung then being uncapable of acting in Exceſs of Heat immediately upon the Mould, or doing any more to it then what is barely requiſite to give the Earth a due Warmth.

## *Obſervation* LXIX.

Another Experiment which may be very properly made in this Month, relates to the Production of Lemons from the Kernels. I obſerve, that thoſe Lemons which are brought from the hotter Countries, and are firſt ripe, begin about this Time of the Year, to decay and yield an inſipid Pulp, in which the Kernels are ſo much forwarded to Vegetation, that even in the Fruit they ſtrike out Roots, and tend to Growth. This put me in Mind, that the Pulp is of great Uſe and Aſſiſtance to the Growth of the Kernels, as well as to maintain the viſcous Matter, which we always find about their outward Coat; and therefore I was reſolv'd to try how far I could make it ſubſervient to grown

Trres of the ſame ſort, as well as aſſiſt thoſe Kernels which I ſhould ſow with it.

### *Obſervation* LXX.

I have directed the Uſe of the Pulp of full ripe Lemons to be apply'd to the Roots of Lemon-Trees, and find already that they proſper exceedingly; but in the Removal eſpecially of theſe Trees, which are uſually apt to ſuffer very much by tranſplanting, I find, that by the dreſſing their Roots well with this Pulp, and laying ſome of it about them, they ſhoot with great Strength: And I am of Opinion, that were we to uſe the Pulp of all Fruits in the ſame Way, to ſuch Trees as were of the ſame Kinds, we ſhould meet with extraordinary Succeſs.

## *Of the Caper, and the manner of Pickling it.*

### *Obſervation* LXXI.

AS I am the firſt who have made the Caper familiar to our Climate, I think it neceſſary to give my Reader a Word or two concerning it, which yet I have not mention'd in any of my Works, and that eſpecially relating to the Method of gathering the Capers, and pickling them for Uſe. I have obſerv'd before, that the Capers we eat, are the Bloſſoms of the Caper-Buſh, before they open, or the Flower Buds of the Caper; theſe grow along the Shoots of the Plant, and would be very tedious to gather Bud by Bud; but the Way is, to ſtrip them off the

Twigs, Leaves and all, and ſift them through an open Sieve, which lets only the Bloſſom-buds paſs; when this is done, we let the Buds lie a Day or two in Heaps, and then putting them into very ſharp Vinegar, let them remain in it eight or nine Days, and after this, ſhift the Buds into another Veſſel of freſh Vinegar, to ſteep as before, and they will then be fit for Uſe.

## *Of an extraordinary Caſcade of Water, which will repreſent Flaſhes of Lightning.*

### *Obſervation* LXXII.

IN Diſcourſe the laſt Year with a Gentleman of *Oxford*, concerning the Embelliſhments proper for Gardens, he inform'd me of a Curioſity in Water-works, which, I think, muſt be very diverting; and, particularly, if we ſhould once come to follow the *French* Faſhion of illuminating Woods and Gardens for Aſſemblies or Balls, it is to have a Water-Fall in Sheets over an Arch, and by placing Candles or Torches within the Arch, the daſhing of the Water appears like Flaſhes of Fire, which muſt have ſuch an extraordinary Effect, as I cannot paſs over without Notice.

### *Obſervation* LXXIII.

Conſidering how much the Fleſh, Blood, and other Parts of Animals contribute to the Vegetation of Plants; and that Bodies of a viſcous

Quality are found to be of Uſe to many kinds of Vegetables, as well at the Time of tranſplanting them, as when they are decaying, or in low Health: I therefore conceive, that whatever Part of an Animal is the moſt viſcous, muſt have an Excellence in it above the reſt for our Purpoſe; and that a Subſtance of this Nature, where it is purely ſimple, muſt be preferable to all mixt viſcous Bodies.

In this Work I have given ſome Examples of aſſiſting the Growth of Plants by laying the Fleſh of Animals to their Roots; and have alſo mention'd the Uſe of Soap, a compound viſcous Body, to do good Service in ſome Particulars. I have likewiſe endeavour'd to ſhew the Analogy which there is between Plants and Animals; but have in thoſe Accounts ſlipt in ſome Thoughts, which may, upon this Occaſion, be neceſſary to obſerve, *viz.* that Birds and Fowls of all kinds ſeem to have a greater Harmony with Plants than any of the four-footed Creatures, the Eggs of Fowls being excluded from their Bodies, to be afterwards inoculated and hatcht into a Likeneſs of their original Like.

The Seeds of Plants are diſcharg'd, like the Eggs of Buds, from the Mother Plant, to be afterwards brought into Figure by being hatcht in the Earth; but Quadrupedes, or four-footed Beaſts, for the moſt part, bring their young Ones perfect into the World.

Again, Fowls are cloath'd with Feathers, as Plants are with Leaves, and every Feather is in many Reſpects agreeable to the Leaves of Trees; theſe Feathers have their Roots by which they are join'd with the main Body and Branches, and have their Ribs and Ramifications like the

Leaves of Plants, and like Leaves annually fall and are renew'd. Add to this, that the chief Food for the Nouriſhment of Fowls is from the Seeds or Grains of Plants; and, on the other hand, it may be that Plants may be as well aſſiſted in their Growth, by the Fleſh, Feathers, or other Parts of Birds.

After this, we come next to conſider the Eggs of Fowls, which contain a large Quantity of that viſcous Matter which is call'd the White, and would in due Time, by gentle Heat, contribute to make up the Parts of the Fowl. Now ſince there is ſo great an Harmony as we obſerve between Fowls and Plants, I ſee no Reaſon but the White of an Egg muſt be the moſt helpful viſcous Matter to forward the Growth of Seeds and Plants; and, I think, would be worth our Trial.

## *Of Mr.* Fowler*'s Cucumbers on* January *the Firſt.*

*To Mr.* Richard Bradley.

*Stoke-Newington,*

### *Obſervation* LXXIV.

I Kept an exact Account of the Times of ſowing Cucumbers the laſt Year for a forward Crop; and becauſe I underſtand that ſeveral try'd to raiſe Cucumbers laſt Year at *Chriſtmas*, and fail'd therein, I have ſent you my Obſervations, that they may judge better this Year of the Times of ſowing than they did the laſt. I am ſure now, that I can produce a Brace of good Cucumbers in every Month in the Year, from what I have diſcover'd in the laſt Years Practice.

*July* the 17*th*, 1721. I ſow'd Cucumbers on the natural Ground, to tranſplant them upon a moderate hot Bed; but theſe Plants were too forward for my Deſign.

Then I continu'd ſowing every Week till *the* 26*th* of *Auguſt*, and then the Plants began to do Buſineſs; for thoſe Plants, that were ſown the 26*th* of *Auguſt*, began to ſhew Fruit the beginning of *October*, with a very good Appearance of a Crop, but were very much troubled with Earwiggs, which would deſtroy great Quantities in a Night's Time.

In *September* I ſow'd three Times, *viz.* on the 9*th*, the 19*th*, and the 25*th*; and thoſe ſown on the 25*th* were the Plants that I cut my Fruit from on the Firſt of *January*; but thoſe ſown in *October* will bring a good Crop in *February*, with good Management. I conclude,

*SIR,*

*Your moſt humble Servant,*

T. FOWLER.

## *To Dr.* BRADLEY, *&c.*

### *Obſervation* LXXV.

*London, Sept.* 6, 1723.

*Dr.* BRADLEY,

THY unweary'd Endeavours to promote publick Good deſerve the Thanks and Encouragement of every Lover of his Country, and induces me to contribute my Mite to ſo laudable an Undertaking, being an Obſervation I have lately made. Many good Eſtates, and fine Seats that lie on the Sea-Coaſts, are render'd very unpleaſant and incommodious, by their Expoſedneſs to the Fury of the Weather. Some Attempts have been made to redreſs this Grievance, chiefly by making Plantations of Trees; yet in many Places this has not ſucceeded, which, I am perſuaded, principally proceeds from a wrong Choice of Trees for ſuch Expoſures. In my Journey along the Sea-Coaſts of *South-Wales*, I obſerv'd the great Maple, or what is commonly call'd the Sycamore, compleatly to anſwer the Deſign of ſuch expos'd Plantations, it growing upright, ſtanding firm, and arriving to a great Magnitude, though in the moſt expos'd Situation. A particular Inſtance of the great Service, Benefit and Beauty of this (I may ſay) deſpis'd Tree, is at *Morgam*, a Seat of the Lord *Manſel's*, near the Sea, where his Garden and fine Orangery is on one Side protected by a ſtately Grove of this Tree, and on another Side by a beautiful Row. The Gardiner told me, that after ſeveral Eſſays, this Tree was only found to ſucceed beſt, and even to thrive in a Tempeſt. I ſhall ſubmit to thy better Judgment, if this will be worth communicating to the Publick. And am,

*Thy ſincere Friend,*

P. Collinſon.

The curious Author of the foregoing Letter has therein given us, as it were, a Plant that we had not before; for what is any Thing to us, without we know its Uſe? And hitherto, this Sycamore has always been eſteem'd a meer Weed; it has never carried any Value: The Diſcovery now of its Uſe, is like finding out a Man of Merit and Learning, who has lain conceal'd for a long Time, and bringing him from his private Way of Life, to be an Inſtrument of publick Benefit; and ſurely, ſuch Diſcoveries ought to bring Honour to the Diſcoverer. I ſuppoſe that the Gentlemen about the Weſt of *England*, near the Sea, may reap great Advantage, by planting Groves of theſe Trees for Shelter, as well as thoſe who live in the Iſle of *Wight*, where the weſterly Winds are very violent and injurious; and beſides, theſe Trees are extraordinary quick Growers, and come up from Seed the ſame Spring we ſow them.

## *New Conſiderations concerning the Potting of Orange-Trees.*

### *Obſervation* LXXVI.

THERE is one Remark which I have not hinted at before in my Works, and greatly concerns the Potting of Orange-Trees; and that is, when our Mould is light, the Tree may have a larger Pot, than when the Mould is more loamy or heavy; for in the Buſineſs of potting of Orange-Trees, it is to be conſider'd, that my general Directions for giving ſmall Pots to them, is with a Regard to the watering them by unskilful Hands: for when Water lies long at the Root of an Orange-Tree, which it will do if the Earth be heavy, it chills the Root and deſtroys the Plant; ſo commonly, when Trees are in large Pots, but eſpecially in Tubs, they ſuffer by watering; and then it is preſently ſaid, they are over-potted, and the Remedy is, to ſhift the Tree into a leſſer Pot. But if an Orange-Tree be planted in a light Mould, it will bear a bigger Pot, and yet indiſcreet Waterings will do it little Harm; for the Water does not lye cold and chilly about the Root, but paſſes freely, and the Plant thrives. Again, there is a great deal to be ſaid concerning the Difference between Pots and Tubs for Orange-Trees; that is, as far as they concern the Health of Orange-Trees; for Example, Tubs are near as broad at the Bottom as they are at Top, and hold Water much longer in their Bottoms, than a Pot will do, and therefore often hurt the Root; and then again, if an Orange-Tree happens to outgrow the Tub or Caſe it is in, then the Roots ſtrike into the Wood of the Tub, and are forced to be torn and broken when we ſhift them. *Thirdly*, When it is Time for ſhifting them, it is difficult to diſengage the Root from the Tub. And *laſtly*, The Tubs ſeldom laſt longer than four Years without rotting, or becoming unfit for Uſe; and ſometimes through the Rottenneſs of a Tub, a Tree is forc'd to be ſhifted at a wrong Seaſon, even ſo as to endanger its Growth; but a well turn'd Pot is not ſubject to theſe Inconveniencies. Beſides, how much cheaper a Pot is than a Tub or Caſe! The Pots which I approve of to be the beſt in their Shape and Make, beſides their Cheapneſs, are made and ſold by Mr. *Thomas Bond*, Potter, at his Work-houſe in the Mouth of the Creek next the *Thames* at *Deptford*; who, with a great deal of Ingenuity, makes all ſorts of Urns, Vaſes, and footed Flower-Pots, printed or work'd in *Baſſo relievo* after any Model; which, when they are painted, are not inferior to any, that are either carv'd or caſt in Lead, for the Ornament of Peers, or Walls.

## *Obſervation* LXXVII.

### *Some new Improvements in the Art of raiſing Cucumbers in the Winter; by Mr.* Thomas Fowler, *Gardiner to Sir* Nathaniel Gould, *at* Stoke-Newington, Middleſex.

*To Mr.* BRADLEY, *Fellow of the Royal Society.*

*SIR,*

YOU deſire to know how I went on in my raiſing Cucumbers in the Winter; and ſo I ſend this to acquaint you, that I have done what I promis'd, in cutting Cucumbers every Month in the Year. I ſhew'd you ſome in *December*, which I brought to bear, by Means of a new Frame that I invented, and anſwers very well for ſuch Things, becauſe we can move the Plants with the Earth, and all from Bed to Bed as we ſee Occaſion, without diſturbing the Plants; and I can humour my new Frames, ſo that the hot Beds ſhall never burn the Plants.

My Frames are made for one Light a Piece, and are ſo ſmall, that we can ſet them, Glaſſes and all, into any common hot Bed Frame; my Frames are made to take all to Pieces, and have wooden Bars at the Bottom to hold the Earth in them, till we put the Plants in a hot Bed, where they are to ſtand for good; and when a new hot Bed is ſo hot that it would burn any Plants that I was to plant in it, I can ſet my little Frames upon it, only putting a Board between the wooden Bars at the Bottom of my Frames and the Dung, till the burning is over; and alſo, when the Bed is ſo hot, I do not put on the Light that is made for the great Frame, but only keep on the Lights upon my ſmall Frames; and when the Bed is in good Temper, then I can take away my Frames, and leave the Plants growing without diſturbing them.

I had alſo Kidney-Beans and Peaſe in the Winter and the Spring, which were ſown in Pots, and they bore very well; and ſo I find it very eaſy to have any Thing of that ſort at any Time of Year when one pleaſes. I conclude,

*Sir,*

*Your moſt humble Servant,*

*Aug.* 24. 1723. Thomas Fowler.

I ſhall conclude this Chapter with the following Letter, as it is a Confirmation of ſeveral of the foregoing Obſervations.

## *To Mr.* BRADLEY.

*Newcaſtle upon Tyne, Sep.* 26, 1721.

*SIR,*

'I Have been one of your Readers and Admirers for your Induſtry in collecting, 'reaſoning upon, and handing down to us whatever

ever I believe is of any valuable Uſe, in *Agri-* and *Horti-Culture* at Home or Abroad, and this both from the Ancients and Moderns. And ſeeing you invite Perſons to communicate any Trials relating to either, I ſhall only now tell you, that this laſt Summer I rais'd Seeds of Oranges and Lemons in a hot Bed, but very late (I think I begun not till *June*). I anointed ſome of them with ſoft Soap before I ſet them, alſo watered them with Soap-Water; the Effect was, that the ſoap'd Seeds came up firſt, and the Lemon-Seeds, I think, a Week at leaſt, before thoſe unſoap'd, or the Orange. Towards the Middle or latter End of *Auguſt*, they had about four or five Leaves beſides the Seed Leaves, upon which I graffed ſome of them with the tender Cions of an Orange-Tree, in the Method you mention that Mr. *Curteſs* uſeth. My graffing Wax was only Bees-Wax, brought to a Conſiſtence with fine Turpentine (for I had not then ſeen *Agricola's* graffing Mummies) but they all fail'd me, whether by over-hard lying with Jerſey, or the Turpentine was too hot, (for I ſince find, as *Agricola* tell us, it ought to have its finer Spirits evaporated by Heat.) I alſo us'd ſoft Soap as you adviſe to young Shoots of Vines, which took: I tried it alſo upon Slips of *Bruſſels* Abricots, Peaches, Nectarines, Paradiſe-Stocks, *&c.* but without Succeſs; only ſome Cuttings of the Paſſion-Tree, plain Myrtle, and ſpotted Phyllirea, have, I think, ſo taken, that they will hold by houſing: I ſhall, if I live to another Year (for I am now entring upon my 77*th* Year) try ſome other Experiments. I caus'd about laſt *November* ſeveral Holes, with ‘a round Iron, to be made betwixt the Joints of the large Stones, of which our firm and ſolid Town Walls are built; for I have two hundred Yards or more for a Fence to the Northward of my Garden; and put into each the Root of a ſmall Vine rais'd from ſhort Cuttings the Year before, with a little fine Earth in each Hole; two thirds at leaſt, or rather more (for I find thoſe, I thought had not taken, are juſt now putting forth Buds and Leaves) grew, and are hopeful; *I* am therefore thinking, if I could get ſome Caper-Seeds of your Trials, about which you give ſo good an Account, that they may perhaps take with me; but not knowing where to have them, unleſs your *Italian* Gardiner, you mention in your *Improvements* for *April*, can furniſh me with them; or, if he have none, if you would pleaſe either to leave Word with Mr. *Peele* where I may buy them, or to procure ſome of your Acquaintance that ſends to *Italy* yearly for Seeds, as you tell us, to get me ſome, I ſhall get one to call upon him to know where I may get them, as alſo for ſome Sprout Colliflower Seeds, and you will therein greatly oblige me, more eſpecially if you can inform me Dr. *Douglaſs's* Way of propagating Miſletoe; for I have tried two Winters in vain: As alſo, if you have any Thing in ſhort about Bees, which I am for planting a Colony of, but ſo as not to ſwarm yearly as in the common Method, and yet in Wood and Glaſs-hives, which I hear ſome about us have try'd, but not ſucceſsfully; that Method, I think, being too cool for our Climate, but, perhaps, by Straw-hives of another Shape may ſucceed.

‘ I had ſome Potatoes from *Bermudas*, the laſt
‘ of which pleas'd me greatly. I ſet ſome of
‘ them in *July* as ſoon as I receiv'd them; they
‘ are but newly come up, but whether they
‘ will ſtand this Winter or no, I know not.
‘ This, Sir, is what occurs at preſent; but I
‘ ſhall, God willing, next Year try *Agricola*'s
‘ Mummies, *&c.* as alſo ſome Things helping
‘ Vegetation, mention'd in *Glauber*'s Works;
‘ as alſo an oily, volatile vegetative Salt, mention'd
‘ by Dr. *Borehave* of *Leyden*, in his College
‘ of Chymiſtry; of which, as alſo of any
‘ Trials you will recommend to me, I ſhall think
‘ my ſelf oblig'd to give you an Account, if
‘ you anſwer this, by directing to me in *Newcastle*
‘ *upon Tyne*, which is ſufficient. I am,

*SIR,*

*Your aſſured Friend and Servant,*

Robert Heſlop.

CHAP.

## CHAP. X.

### Remarks upon the Weather and Produce, Anno 1721, beginning with the Month of April.

THO' I am to give an Account of the Weather for the Year 1721, yet, I believe, if I give my Reader a little View of the State of it in the preceding Months, he will not be diſpleas'd.

*January*, contrary to Expectation, was this Year ſo mild and free from Froſts, that Beans, Peaſe, and Cabbage-Plants, began to take the ſame Freedom of Growth which they us'd to do in *February*; thus were theſe Plants fill'd with fluid Sap, and became more liable to receive Injury from Froſts, than if they had been timely check'd.

While they were in the growing State, a ſevere Froſt attack'd them, which laſted the greateſt part of *February*, and cut them down to the Ground paſt Recovery; ſo that the Gardiners and Husbandmen were oblig'd to renew all theſe natural Crops, unleſs ſuch only as were but juſt riſing out of the Ground. *March* afforded nothing but cold Rains, rough blighting Winds and ſtormy Weather, which kept moſt Plants at a ſtand, till *April* introduc'd hot cloſe Weather with gentle refreſhing Showers, which brought us a ſudden Spring; but through the Irregularity of the foregoing Months it is obſervable, that natural Aſparagus did not appear till about the fifteenth Day, which is more than a Week later than uſual.

Moſt of the Spring Flowers were cut off, eſpecially Ranuncula's and Anemones, and Carnations were extraordinary Sufferers.

The Croſſneſs of the Seaſon had alſo an extraordinary Effect upon the hot Beds, ſo that many ingenious Gardiners, who were us'd to cut Cucumbers in *March*, were diſappointed in their Crops; but this Misfortune of ſome gave me Opportunity of hearing the Fame of Mr. *Gilman* at *Brentford*, who, by his Care and good Judgment, brought ten Dozen of large Cucumbers to Market in *March*, and has continu'd to ſupply the Town to this Day, though the Neat-houſe Gardiners are now only beginning to cut.

To this we may add, that about the End of *March*, Kidney-Beans, rais'd in hot Beds, were ſold in *Covent-Garden* Market, for about two Shillings and ſix Pence *per* Dozen; and Muſhrooms were bought for eight and ten Shillings a Basket in St. *James*'s Market, which were rais'd artificially in Beds, as the Gardiners do about *Paris*; but I have now inſtructed ſeveral Gardiners in the *French* Method, and hope, for the future, to find them conſtantly plentiful.

Among other Rarities, ſome Cherries have been brought to Town near a Month ago, having had the Benefit of forcing Frames.

We may now likewiſe take Notice of the *Brocoli*, or Sprout-Colliflower, or, as ſome call it, the *Italian* Aſparagus; it is a Plant which has been cultivated privately in ſome few Gardens in *England*, for about three Years, and has now gain'd ſo much Fame, that, I judge, it would be worth the Gardiners while to propagate it for the Markets. I have obſerv'd two or three ſorts of it, *viz.* one which yields Sprouts button'd at their Points, or headed like ſmall Colliflowers; one ſort with curl'd Leaves, which brings Sprouts button'd on the Points like Aſparagus; and the other with curl'd Leaves of a pale green Colour, which yields Sprouts like the former. The Seeds of theſe laſt Kinds may be had at the Crown, an *Italian* Gardiner's, behind *Buckingham* Houſe, near St. *James's* Park, which I mention the rather at this Time, becauſe it is not yet too late to ſow the Seeds; but it is rare to find the Seeds of the firſt kind, unleſs in the Hands of ſome Gentlemen, who have them every Year from *Italy:* They are all to be dealt with like Colliflower Plants; but concerning their Uſe, and the Method of preparing them for the Table, I have learn'd, that the Sprouts are to be gather'd as ſoon as the Flower-Buds appear, and they muſt be boyl'd only four Minutes.

## *Remarks on the Weather and Produce in* May.

THIS Month the Weather continued like that of the preceding Month, till about the twentieth Day, *viz.* exceſſive Rains and Froſts, which laſt very much contributed to the Deſtruction of the Fruit in the low Grounds in *Middleſex*, and ſome Parts of *Surry*; but what is remarkable, moſt of the Gardens in the Uplands were ſafe: So that, I ſuppoſe, the Harm which came to the Fruits in the Bottoms was occaſion'd from cold Dews, rather than any ill Conſequences ariſing from the Eaſt Winds, which reign'd at that Time, but were not very turbulent.

The exceſſive Rains, however, were not diſadvantagious to the Graſs-Grounds; for as the Weather from the twentieth to the end of the Month has been clear and hot, there is a fair Proſpect of a rich Crop of Hay.

The Violence of the Weather at the beginning of the Month was ſo ſevere, that I was inform'd by the Gardiners about the *Neat-houſes*, that they could not cut one fourth Part of the Aſparagus which they had done, even in the preceding Month, which, though bad enough, had afforded good Crops; the hot Bed Cucumbers were in ſome Places deſtroy'd, which gave the few that were brought to Market as great a Price as when they firſt came in.

*May Dukes*, and common *May* Cherries, in the laſt Week, were ſold dearer by one third than uſual, as I learn'd from a great Dealer in thoſe Things.

*Colliflowers* of the right ſort were ſold in the Gardens for five Shillings each, but ſome of the green kind for twelve Pence, about the middle of the Month. Mr. *Jewel*, of the *Neat-houſes*, ſent the fine ſort to Market firſt, about the 14*th*, and then Kidney-Beans, rais'd in hot Beds, were about three or four Shillings *per* hundred. He told me he was the firſt Gardiner in *England* that rais'd the young Sallad Herbs for the Winter Markets, and Kidney-Beans in hot Beds.

Green-Gooſberries firſt came to the Markets about the beginning at two Shillings *per* Quart, and now at the End are ſold for three half Pence *per* Quart.

Forward Peaſe were ſold this Month for half a Guinea *per* Pottle-basket, and Beans at four Shillings about the end of the Month.

I chooſe to mention the Prices of theſe Curioſities, that we may the better judge of their Scarcity, and compare them with Fruits of the ſame kind another Seaſon.

We may this and the next Month ſet the young Shoots of Vines; after ſoaping the Ends which are to be interr'd, and keeping them well water'd, they will preſently take Root.

## *Remarks on the Weather and Produce in* June.

FROM the beginning of this Month to the 16*th* Day, the Weather was cold and very rainy, the Wind all that Time at Weſt, and ſometimes blowing hard; but ſome Thunder

Showers falling, the Wind chang'd as uſual, and we have had hot Weather to the end.

I cannot help remarking in this Place an Obſervation of the curious Mr. *Barham*, *F. R. S.* which he made three or four Years ago in his Voyage from *Jamaica* to *England*, in part of *May* and *June*, and has ſince been obſerv'd by others in the ſame Paſſage about the ſame Seaſon; which, I believe, may ſerve to account for the cold Air and the Wet, which commonly happens more or leſs about this Time of the Year, when the Wind is at Weſt eſpecially. Mr. *Barham* inform'd me, that in the Weſtern Ocean he met ſeveral large Iſlands of Ice coming from the North, and making their Way towards the Line; from which aroſe ſo great an Exhalation and Fog, that the Ship was often in Danger of falling foul of them: Some others tell me, ſome Iſlands of this kind have been lately ſeen, which meaſur'd about ſixty Miles in length, which muſt conſequently emit a prodigious Quantity of Vapour, enough to produce ſuch Clouds as might very reaſonably afford us the great Quantity of Rain we have had fallen at the Time of their Paſſage; ſo that we may expect yearly about the ſame Time cold Rains, or Hail-Storms, in greater or leſs Abundance, as theſe Iſlands of Ice are more or leſs in Quantity, or ſome Days ſooner or later as they happen to be in their Paſſage to the Southward.

From theſe Storms we are apt to receive great Damage in our Fields, Orchards and Gardens; they lay the Corn, bruiſe the Fruit ſometimes, ſo as to deſtroy it quite, or give room for noiſom Inſects to annoy it; and I have known many fine Plants and Flowers entirely ruin'd by them: But if in lieu of theſe Storms, the Weather is ſettled Rain for eight or ten Days, the Farmer is in danger of loſing his Hay, or having its Colour chang'd, which lowers its Value in the Markets; and the Cold, which attends ſuch Rains, retards the ripening of Fruits, and renders them inſipid even when they come to be ripe.

The dark Weather of this Seaſon was ſo injurious to the Gardens, that our firſt Cabbages were not in the Markets till the beginning of the Month, and then held at one Shilling, or ten Pence a piece for a Week, or more; about which Time a greater Quantity being brought to *London*, their Price fell to one fourth Part, and towards the End to an indifferent Market-Price: In the mean while, Colliflowers had much the ſame Turn, and became of very little Value in the end of the Month, through their extravagant Numbers. About the middle of the Month, moſt of the Crops of Peaſe and Beans about *London* were ripe, and came daily in ſuch Quantities to the Markets, that their Price was reduc'd to about one Shilling *per* Buſhel, unleſs ſuch only as were of the fineſt ſorts, brought from particular Gardens.

About the fifteenth, I ſaw ſeveral ſmall Melons, and ſome maſculine Abricots, with ſome Codlins as large as Walnuts: The mean while, Cherries of moſt kinds were in the Markets at moderate Prices, and Cucumbers at the latter End kept their Price at one Shilling *per* Dozen, if they were good Fruit. About the 20*th*, the red and white Currans began to ripen, and towards the End were very plentifully brought to Town; as alſo Raſberries, and the green and red kinds of Gooſberries full ripe, in great Abundance; and we had yet ſome of the Wood Strawberries.

There were to the laſt Gooſberries of the common kinds for Tarts, which did not ſeem to promiſe ripening in leſs than fifteen Days good Weather.

All this Month we had Turneps, Carrots, and Onions, which were well appled, fit for boiling, at a middle Price, and Artichokes were extreamly cheap.

We may be ſatisfied from ſuch Remarks what we may expect in the ſeveral Seaſons of the Year, even when they have been curb'd by Weather as bad as we have had ſince the Spring began; we may judge how much the Price of any Commodity is rais'd or fallen in the Markets by its Scarcity, or over Abundance, and from thence learn how to proportion our ſeveral Crops, that every one of them may be able to pay the Expence of raiſing and bringing to Market, which ſome of them do not, as the State of Gardening now is: Therefore I think it will be no bad Advice to the Gardiners and Huſbandmen, to perſuade them to general Meetings now and then, to conſult about the State of their Crops, and thereby prevent the too great Glut of any one Thing, and contrive to have their Crops follow one another, and not as they do at preſent come in all together, to their own Prejudice and the Diſcontent of the Buyers, who certainly would rather chuſe a long Continuance of uſeful Fruits or Herbs, than to be ſurfeited with them at once, or to enjoy them only a few Days, and want them all the Year beſides. But ſome few are indeed wiſe enough to conſider this with ſuch true Judgment, that they gain at leaſt four Times as much by their latter Crops, as they would have got if they had puſh'd their Fortunes in the firſt Seaſon.

## *Remarks on the Weather and Produce in* July.

THE Weather at the beginning was uncertain, but the Winds for the moſt part blowing from the Weſt and South Weſt, the Air was cool and ſharp for the Seaſon; which brings to my Mind once more the Obſervation I made in the preceding Month, of the Paſſage of Mountains, or rather Iſlands of Ice from the North towards the Line, which, I ſuppoſe, had no ſmall Influence over the Weather with us. The tenth, eleventh, and twelfth Days, the Wind was more Weſt than South, the Weather ſtormy and rainy, with cold Hail, which injured the Fruit and laid the Corn, but chiefly damag'd the Hops. From the twelfth to the twentieth we had cold Winds, which gradually were more South every Day, and declin'd in Cold to the twenty fifth.

About the twenty ſeventh we had warm Weather, which laſted to the End of the Month, a few ſhort Hurricanes now and then from the South Weſt, but ended North Eaſt.

The Garden Fruits of the preceding Month continued, and we had Strawberries till the end, which, perhaps, might proceed from the rainy Seaſon. The *Katherine* and many other kinds of Pears came into the Markets about the beginning,

ginning, and ſeveral ſorts of Plums about the middle: Genniting Apples were brought to Town likewiſe about that Time, and Codlings were then very large, but not in plenty. About the twentieth I obſerv'd the firſt Nutmeg-Peaches and *Turkey* Abricots ripe; Kidney Beans were every where at a moderate Price; all ſorts of Gooſberries were ripe, and Melons, though the Seaſon had render'd them ill taſted, were numerous enough: Several ſorts of Figs were now ripe, and ſome Grapes at Mr. *Fairchild*'s. The firſt ripe *Ananas* of this Year were now cut at *Richmond*, notwithſtanding the Difficulty of the Seaſon which the Gardiner had to engage with. But it is a Maxim, that the greater Difficulties we have to encounter with, the greater Honour we gain by the Victory. Which leads me farther to take Notice of what I have had the Opportunity of obſerving this Year in the Gardens of Meſſieurs *Warners* at *Rotherhith*. Theſe Gentlemen, who are Brothers and near Neighbours, have Gardens curiouſly deſign'd for the propagating of Fruit, and are each of them excellently skill'd in the manner of Pruning, and in that Philoſophy which is neceſſary to bring Trees to good bearing. The Way of their Management, I think, is near the ſame; and could every one have the Liberty of ſeeing their Gardens, in my Opinion, they could not have a better Example for the managing of Dwarf-Trees of Apples and Pears in *England*. One of theſe Gentlemen, in this bad Year, in one Part of his Garden, not much more than half an Acre, has more Fruit than any Garden, among the many I have ſeen, can boaſt of in three Acres; yet we may at the ſame time obſerve a promiſing Proſpect of Bloſſoms for the Furniture of the next Summer.

At Mr. *John Warner's* we obſerve a little Vineyard, which is ſo modell'd, that it ſerves even as an Ornament to his Parterre; and is an Example of Vines ſo judiciouſly order'd, that out of fewer than an hundred, and ſome of them not more than the ſecond Year's Growth, was made a Veſſel of Wine containing ninety five Gallons, which is almoſt a Gallon of Wine from a ſingle Vine of four Foot high; or to reckon where the Grapes grow, the Vines are not above two Foot from the Ground.

This Gentleman did me the Favour to give me a Taſte of the Wine made from theſe Vines; and, I conceive, was it old, or kept to the Length of Time as Old Hock is generally kept, it would be full as ſmooth and ſtrong; but as it was, I found that it poſſeſs'd the *Burgundy* Flavour, which was the ſort of Grape it was made of, and was much more ſuperior to thoſe Wines which grow about *Beauvais* and *Clairmont*, or in any Vineyard on this ſide *Paris*; and, I doubt not, but if this Wine-making Buſineſs was carried on with a little Art, many Lands, which now lie idle in *Britain*, might render an extraordinary Return to the Owner. There are ſeveral Ways of making Wines abroad, which I have collected, on purpoſe to introduce Vineyards into *England*; and, I am perſuaded, that if the ſame Grapes which made the Wine I taſted had been manag'd in the beſt manner, it would have been as ſtrong again as it is; or elſe, if a Spirit had been drawn from the Grapes, even if they had not ripen'd, it would have been equal to any

*French* Brandy; for among the Vineyard Men in *France*, they hold it as a Rule, that all Vineyards which make ſmall Wine, make the beſt flavour'd Brandy; or even if Grapes are not ripe, they ſtill afford an excellent Spirit.

I take this Occaſion to thank my Correſpondents for the many ingenious Letters they have ſent me; and hope they will ſtill continue to proſecute thoſe Studies which may prove ſo advantagious to the Publick, as the Improvement of Land will be. The Method I have taken to publiſh their Remarks with my own, may, perhaps, in due Time fix ſo free a Correſpondence among the Curious in the ſeveral Parts of *Britain*, that many uſeful Things may be brought to Light, which otherwiſe would have never been known. I receiv'd Mr. *L. L*'s Letter, and think his Advice very good, to perſuade my Countrymen not to ſcruple Writing upon Subjects of this kind, becauſe it is common with them; for it is very likely, what may be common in one Country, may be unknown to all the reſt; and, perhaps, not only every County, but every Pariſh, may have ſomething generally practis'd, which the next Place may be ignorant of. But I fear it is the ſame in this Caſe, that it was in an Affair between two Gentlemen of my Acquaintance; one of them going to the *Weſt-Indies*, promis'd to bring his Friend whatever curious Plants he could pick up, but return'd Home without any at all, telling his Friend, he could not find any Plants in the Countries he had been in, but what grew there wild as Weeds, and that were all ſo common there, that he did not think them worth his Friend's Acceptance, who was ſo curious a Man.

This Diſappointment, however, only loſt a little Time, for ever ſince the curious Gentleman, who has the Garden in *England*, deſires his travelling Friends to bring him the Weeds, or moſt common Plants they can meet with; and thereby his Garden is continually ſupply'd with Curioſities.

## *Remarks upon the Weather and the Produce in* Auguſt.

THE Weather at the beginning of the Month was warm, the Wind *Weſt*; about the fifth Day the Wind chop'd about to the *North* and *North-Eaſt*; the Weather moderate and dry till the thirteenth, when we began to have ſome gentle Showers; the Wind then changing to the *Weſt*, remain'd about that Point till towards the end of the Month, excepting only a Day or two that it was changeable from *North* to *North-Eaſt*, and touching ſometimes upon the *South*. While the Wind was weſterly I obſerv'd we had frequent Rains, but whilſt it was ſhifting in the other Quarters the Sky was clear. All this Time, however, we had not the ſame Reaſon to complain of Cold as we had in the preceding Month, though we are us'd to expect ſome Cold about St. *Bartholomew*'s Day. The Spirit in the *Thermometer* was then about 34 Degrees, and towards the end at 43.

We had now ripe the beſt *Peaches* and *Nectarines*, ſome *Abricots*, many ſorts of *Pears*, *Apples* of various kinds, *Plums*, ſome *Morello Cherries*, ſome *Rasberries*, *Goosberries* and *Currans* in plenty. *Mulberries* began to ripen apace; *Figs* of five or ſix ſorts, ſome of the *July*, *Sweet Water* and *Burgundy Grapes* ripen'd where they had the Advantage of good Walls and good Pruning; and about the end I ſaw ſome of the *white Muſcadine*, *black Curran* and *black Cluſter* Grapes pretty near ripening againſt good Walls: And in Mr. *Warner*'s Vineyard in *Rotherhith*, I obſerv'd ſome of the *July Grapes* in *Eſpalier* full ripe, and the *Burgundy* kind beginning to turn.

And as this Month is commonly the Time of the Year when Grapes and other choice Fruit ſhould, according to the regular Courſe of Seaſons, be ripe in their full Perfection, I ſhall take the Opportunity of mentioning a Contrivance of the late Lord *Capel*'s, for the preſerving them from Flies and other Vermin, which are now more numerous than at any other Time of the Year. The Way is to prepare Bags of Crape, Lawn, or of any other thin and open wrought Stuff, to be extended by ſmall Hoops; which Bags, being put over the Fruit, not only preſerve it from being injur'd by Vermin, but ſuffer the Air and Sun to perform the Act of Maturation or Ripening: But as ſoon as the Froſts begin, theſe Bags are of no longer Uſe; which is ſo plain a Thing that I ſhould not mention it, if I had not ſeen them indiſcreetly us'd with a Deſign to keep the Froſt from the Fruit. This is Indiſcretion, becauſe whoever knows the Nature of Fruit, or of Grapes eſpecially, muſt know, that when the Froſts touch them, the

Skin of the Fruit thickens and ſowers; and it is as certain, that where Air can enter, the Froſt can do the ſame, and will ſpoil the Fruit; therefore it is more reaſonable when our Grapes are full ripe, and we expect froſty Nights, to cover every Bunch with Paper, after having pick'd and clear'd them of the rotten Grapes; ſuch Bunches may remain upon the Vine till *Chriſtmas*, and will then eat very well.

If we cut down a Bed or two of *Aſparagus Haulin*, at the beginning, we may expect it to Sprout again with good Buds about the middle of the next Month; but eſpecially if we open the Alleys, and lay into them a little hot Dung.

I obſerv'd in the Markets plenty of Melons and Cucumbers, Kidney-Beans, Onions, Schalots, Rocambole, ſome Beans and Peaſe, Colliflowers, Cabbages, and fine Sprouts of the forward Cabbages, Turneps, Carrots, ſome forced Salary, Cabbage Lettuce, Philberts, Walnuts and Damſons; but Muſhrooms, which are uſually the Produce of the latter Part of this Month, were very ſcarce, which Scarceneſs, I conceive, might proceed from the Wet and Coldneſs of the Summer Months; for when we have had a dry and hot Summer, I always have taken Notice, that as ſoon as the firſt Rains fall upon the ſcorch'd Ground, Muſhrooms ſpring up plentifully in ſuch Places where Horſes have been grazed the ſame Summer; but this Year ſome Paſtures, which us'd to afford great Abundance, did not produce any, although Horſes had grazed in them this Year as uſual. And I was the more diligent to ſearch for them for the ſake of the Earth under them, which ſeems to be bound together with white Cobweb-like Threads: This

Earth I ſought for, in order to propagate by its means ſome Muſhrooms in hot Beds, according to the Method us'd about *Paris*, where they may be had every Month in the Year.

The *Weſt-India Pine-Apples* or *Ananas* continue ripening at Sir *Matthew Decker's* at *Richmond*.

To conclude this Month, which is the chief Fruit Seaſon, I think I cannot do it more properly than by preſcribing a proper Method for tranſporting of Fruit from one Place to another, ſo that it ſhall receive no Damage, though it paſs over the moſt rugged Ways.

For this uſe we muſt provide a Box and as much Bran as will fill it compleatly, which Bran muſt be carefully dry'd before a Fire, and often turn'd in the time of drying; for if there is Moiſture left in it, it will be apt to ferment by lying a few Days preſs'd together: The Fruit ſhould be tenderly gather'd when the Sun has perfectly dry'd it, and laid upon dry Flannel till the Day following, when it may be pack'd up in the following manner:

Lay an Inch or two thick of Bran at the Bottom of the Box, and after it is well preſs'd down lay on your Fruit ſingle, ſo as not to touch each other, but leaving about an Inch Vacancy. Between the Fruit theſe Vacancies muſt then be cloſely fill'd with Bran, and the Layer of Fruit cover'd with Bran about two Inches, preſs'd gently down. Upon this Place another Parcel of Fruit, ordering it as before, and Bran upon that, and ſo *ſtratum ſuper ſtratum*, or Layer upon Layer, till the Box is full, always having regard that the upper Layer is Bran about two Inches thick, even ſo as to give great Reſiſtance to the Cover of the Box when we nail it down; for ſo the Fruit will be kept tight in the Box, and cannot bruiſe or receive Damage by a Conveyance of three Weeks, as I have proved; ſome, who are very curious, uſe inſtead of Bran fine Wood Aſhes well clear'd from every Part of the Coat, which are rather better than Bran for a long Voyage, but are not ſo eaſily found near *London*.

## *Remarks upon the Weather and Produce in* September.

THE two laſt Days of the preceding Month the Wind was eaſterly, with ſome Showers, which continued till about the fifth Day; and then the Wind ſhifted to the North Weſt, and continued about that Quarter, with fair Weather, till the ninth; when it came about to the South Weſt, and was follow'd with Rain; about the Weſt and South Weſt Point, it continued till the ſixteenth Day, and was accompanied with Rain and brisk Gales of Wind; the Wind then ſhifted to North Eaſt, where it held till the ſeventeenth, when it came about to the Weſt, where it held for a Day or two, and then was unconſtant, ſhifting to Eaſt, and ſometimes touching upon the North Quarter, the Weather continuing fair till the twenty ſeventh, and for the moſt part calm; and from thence to the end of the Month, the Wind changing by the North towards the weſtern Quarter, we had Showers and cool Air.

We have great Variety of Fruit this Month; that is to ſay, a Continuance of all thoſe ſorts mention'd in the preceding Month, with an additional Store of Autumn Pears, and ſome of the beſt ſort of Grapes, which in *Auguſt* were not forwarded enough to ripen, through the badneſs of the Summer; ſuch as the Chianti Grape, red Muſcadine, blue Raiſin, and black Muſcadine; and at Mr. *Fairchild's*, two new ſorts of extraordinary Bigneſs, both in Bunch and Fruit, one of them call'd the St. *Peter*, the other the *Hambrough*. The Pine-Apples at Sir *Matthew Decker's* ſtill continued ripening; and ſuch Cucumbers, as had the Advantage of running againſt Walls, were very fair and fit for the Table, but thoſe upon the Ground good for little. Some blanch'd Sellery and Endive begins to come in, and ſome Aſparagus were cut on the natural Ground, where the Haulm had been cut down in *July*. About the end, I ſaw ſome very good Morello Cherries againſt a North Aſpect, and I queſtion not but they will remain good till the next Month.

## *Remarks upon the Weather and Produce in* October.

THE Wind for the greateſt Part of this Month was weſterly, and the Weather generally fair in the Day time, but frequent Rains in the Night; towards the end we had pinching Froſts, which diſcharg'd the Trees of their Leaves.

I obſerv'd, that one Night the Froſt was ſo very ſmart, that a large Mulberry in about ſix Hours drop'd all its Leaves, without changing their Colour; and though the ſucceeding Froſts were ſharp, yet the fallen Mulberry Leaves remain'd perfectly green above a Week. I take Notice of this, becauſe I do not know any other Tree that ſheds its Leaves ſo ſuddenly, or that has not its Leaves diſcolour'd before they fall.

Mr. *Lemery* very juſtly obſerves, that the Mulberry is not only one of the lateſt Trees that opens its Buds in the Spring, but that contrary to other Trees, the Buds open all together in every Part of the Tree; the Sap of the Mulberry is very reſinous, which I think is the Reaſon why it is late in the Spring before it makes its Shoots, and likewiſe why its Leaves did not change their Colour before they fell; a very ſmall Share of Cold will fix its Juices, and a greater Share of Heat, than other Trees require, is neceſſary to put this reſinous Sap in Motion.

The ſame Froſt ſcorch'd and dry'd the Leaves of all the ſorts of *Frontenia*c Grapes, but the other ſorts did not ſuffer.

Cucumbers laſted till the End, and ſuch as were againſt Walls, and had run up Trees, had very fair Fruit.

Colliflowers were very plentiful, and there were ſome very good Artichokes in the *London* Markets.

We had Kidney-Beans to the End, and in two Gardens I ſaw ſome very good Peaſe.

The Fruits were Pears, Grapes, Apples, Peaches, Wallnuts, Pomgranates, and ſome Pine-

Apples at *Richmond*; in ſome Gardens I ſtill obſerv'd ſome Morello Cherries.

Brocoli is now very good.

About the beginning, Mulberries were yet good, and a Gentleman in *Wiltſhire* gather'd ſome ripe Strawberries of the white Wood kind.

## *Remarks upon the Weather and Produce in* November.

FRom the firſt to the ſixth of this Month we had rainy Weather, and to the thirteenth the Days were dark, without Wet: From that Time to the ſeventeenth we had dark, hazy, rainy, and cold Weather: Upon the ſeventeenth we had a Froſt and a little Snow; the Temper of the Air very cold; as it continued till the twenty fourth; the Weather all that Time dark, with now and then a little Rain. The Air was moderate from the twenty fourth to the twenty ſeventh, the Weather a little inclin'd to Rain; and from the twenty ſeventh to the End we had for the moſt part of the Day clear Weather: The Mornings about their Entrance were cloudy and hazy.

The beginning of this Month I eat good Colliflowers in *Surry*, and a young Crop of Kidney-Beans, which had been nurs'd under Frames and Glaſſes, were in good Condition for the Table: They were ſown about the middle of *July*.

I ſaw ſome tolerable good Artichokes in *Covent-Garden* Market.

We have now all ſorts of Greens or Roots that are profitable to the Kitchen. Nor are we without ſeveral excellent Fruits, ſuch as Apples, Pears, ſome Quinces, Pomgranates; and about the beginning I ſaw ſome Peaches, which had been ſo well kept, that they ſeem'd to be in great Perfection.

This Month likewiſe I eat ſome good Muſhrooms, which were rais'd after the *French* manner, ſo that we have now a Proſpect of having them cultivated in our *Engliſh* Gardens all the Year about.

Aſparagus upon hot Beds was common enough, and Minth, with other green Salads, was found in every Garden of Note about the Town.

Mr. *Fowler*, Gardiner to Sir *Nathaniel Gould*, at *Stoke-Newington*, had ſome Cucumber Plants in great Forwardneſs, and about the End Fruit appear'd upon them.

## *Remarks upon the Weather and Produce in* December.

THIS Month began with froſty Weather, which continu'd till the ſeventh, when we had a little Rain; from the ſeventh we had cold dark Weather, till the tenth, and then had ſome Snow, but it did not remain long in the Ground, for the Air grew very moderate for the Seaſon, and we had dark Days till the nineteenth; at which Time froſty Weather began again to ſhew itſelf till about the twenty eighth Day. The Sky was pretty clear till the twenty fourth, but from thence to the End the Days were dark and overcaſt.

We had in this Month very little more to boaſt of in the Gardening Way, but forced Aſparagus; unleſs it was thoſe Cucumbers which Mr. *Thomas Fowler*, Gardiner to Sir *Nathaniel Gould* at *Stoke-Newington*, had in very good Forwardneſs, and in a promiſing Condition to be fit to cut in *January*; for Apples and Pears, ſuch as come commonly at this Time of the Year, are not Rarities enough to be taken Notice of; only this may be remark'd of the Pears of this Seaſon, that they were apt to rot, and were more inſipid than uſual.

## *Remarks upon the Weather and Produce in* January 172$\frac{1}{2}$.

THE Weather of this Month was remarkably warm, ſo that moſt of the Gardiners about *London* employ'd themſelves in many Works, which us'd to be done in *February*. The Showers which fell now were rather recreating than cold, as uſual; and the Brightneſs and the Warmth of the Sun ſeem'd to be a Month forwarder than its Courſe would allow: The Rains that fell about the beginning were chiefly in the Night, and occaſion'd ſome of the lower Grounds to be overflowed: The Power of the few Froſts which happen'd this Month did not exceed what I have obſerv'd in *October*.

We have little now extraordinary in our common Gardens for eating. The common Roots hold yet pretty good, and the Greens for Table uſe are chiefly Sprouts of Cabbages, Spinage, and young Colewort Plants; forced Aſparagus is the beſt, and as the Month was mild, it was generally more green and better taſted than what we us'd to have in other Years at this Time.

As a great Curioſity which deſerves to be noted in the Way of Gardening, Mr. *Thomas Fowler*, Gardiner to Sir *Nathaniel Gould* of *Stoke-Newington, Middleſex*, preſented his Maſter upon *New-year*'s *Day*, with a Brace of Cucumbers well grown, and had then a fine Proſpect of a good Crop of the ſame Fruit; ſo that there is reaſonable Hopes, that his Example may encourage other Gardiners to give Liberty to their Genius, and not confine themſelves too much to old Rules.

## *Remarks upon the Weather and Produce in* February $172\frac{1}{2}$.

THE beginning of the Month was wet, but the Days moderately warm: About the tenth it began to be windy, and the Evenings cold and wet; but about the middle of the Month it chang'd to fair, and laſted ſo to the end, except only ſome gentle Showers.

Our Gardens this Month have very little in them of natural Things; the Ground being now prepar'd for freſh Crops, there is nothing worth mentioning, but what entirely depends upon the Skill of the Gardiner.

At Mr. *Millet's*, at *North-End*, near *Fulham*, I have ſeen Cherries and green Abricots this Seaſon.

This Month I have had Cucumbers and Kidney-Beans in my own Garden; and Mr. *Thomas Fowler* at *Stoke-Newington*, has now the former, becauſe he had Courage enough to venture out of the old Way.

Mr. *Telende* has now at Sir *Matthew Decker's* at *Richmond* in *Surry*, a great Number of the *Ananas*, or Pine-Apples, in Bloſſom.

Forced Aſparagus comes now ſtronger and better than it did in the preceding Month; and we have ſome of the *Michaelmas* Radiſhes begin to come in.

We have very good young Salads.

## *Remarks upon the Weather and Produce in* March 172$\frac{1}{2}$.

THE two or three Days at the beginning of this Month were warm and pleaſant, but then it chang'd to ſudden Storms of Rain and Hail, but moderately warm in the Intervals: Towards the end we had cold Rains, and the Evenings were cold.

This Month our Markets and Gardens are very ſlenderly furniſh'd with Herbs; for all the Garden Grounds are now freſh laid down, and ſown for Summer Profit, unleſs ſuch Parts as were planted in the Autumn or Winter Months, with Carots, Radiſhes, Spinage, Cabbage, Lettuce, and ſome others.

I ſaw about the end of this Month, at my very curious Friend's —— *Trowel*, Eſq; a large Parcel of Lupines, or the flowering Sprouts of Turneps, and a numberleſs Piece of Cabbage Plants, moving to their flowering State, whoſe tender budded Shoots are much ſuperior to any Green at this Seaſon, for now the Brocoli are gone.

In the Management of the Brocoli and theſe young flowering Shoots of the Cale or Cabbage, or Turnep Race for eating, we muſt ſtring them or pull off the outſide Veſſels before they are boil'd, or elſe they will have a bitter Taſte; and then the Time that they ſhould be in boiling Water ought not to exceed four Minutes, and after that ſerv'd on a flat Plate, with Holes in it like a Culender to let out the Water without preſſing them at all; for the preſſing theſe Herbs makes them loſe their Sweetneſs, which conſiſts in the ſpongy Parts, and thoſe are ſo tender, that they are eaſily preſs'd quite out of the Plant.

If theſe are rightly manag'd, no paſt Green, in my Judgment, is ſo good, unleſs we have Brocoli in its Perfection.

I have heard that there were ripe Cherries at Mr. *Millet*'s of *North-End* about the beginning of this Month; and alſo large green Abricots and Roſe-buds, as there was in his Father's Time.

Mr. *Brown* at *Brentford*, I am inform'd, furniſhed our Markets with Cucumbers this Month.

Natural Aſparagus, contrary to the common Dictates of Nature in preceding Years, were about the middle of this Month brought to Market; I ſaw ſeveral hundreds above Ground on the twentieth Day in ſome of the *Neat-houſe* Gardens about *Tuthill-Fields*; we have yet Parſneps, Carots and Potatoes very good.

## CHAP. XI.

## *A Catalogue of Plants flowering in Mr.* Fairchild's *Garden at* Hoxton *in every Month of the Year.*

### PLANTS *flowering in* April.

Stock Gilly-flowers, ſingle and double, white and red.

Wall-Flowers, white and yellow, double and ſingle.

Plantain-leav'd Ranunculus.

Tulips of ſeveral ſorts, ſingle and double.

*Yorkſhire* Sedum, and the Bird's Eye.

Anemones of various kinds, the beſt ſorts.

Collection of Ranuncula's.

Collection of Daiſies.

Candytuft-Tree, plain and variegated.

Lauruſtinus of ſeveral ſorts.

Nettle-leav'd Jeſſamine, *Spaniſh* Jeſſamine, and the *Indian* yellow Jeſſamine.

Collection of Polyanthos, and Primroſe, double and ſingle.

Black Helebore with a green Flower, Fenel-leav'd Helebore.

Collection of Auricula's, and the Burrage-flower'd Bears-Ear.

Crown-Imperials, ten ſorts.

Collection of Narciſſus.

Star of *Naples*.

Simblaria.

Muſcaria.

Dens caninus.

Hypericum frutex.

Violets double and ſingle, white and blue.

The ſingle red Violet.
Hearts-Eaſe of ſeveral ſorts.
Dwarf Flagg-Iris.
Virginian Colombine.
Wood Anemones, double and ſingle.
Dwarf Almond.
Dwarf Hungarian Honeyſuckle.
Frittilaries, thirty ſorts.
Perwinkle double and ſingle blue, and ſingle white.
Radix Cava.
Dwarf Medlars, two ſorts.
Purple and Aſh-coloured Pulſitilla.
Bulbous Violet.
Double Pilewort.
Lady's Mantle.
Double Lady's-Smock.
Purple and yellow Mountain Avens.
Aloe-leav'd and Onion-leav'd Aſphodil.
Gentianella.
Ornithogalum.
Male Mandrake.
*German* Catchfly.
Tree Scabious.
Bladder-Nut.
White-flower'd Male-Cyſtus.
Star Hyacinth.
Pearl Bugloſs.
*Italian* Camomile.
Calcidonian Iris.
Doronicum.
Double Saxafrage.
Double-flower'd creeping Crowfoot.
Meleanthus.
*Venetian* Vetch.
Sea Daffodil.
Globe Flower.
Scorpion Senna.
Great blue flower'd Perwinkle.
Bird-Cherry.
Double white Mountain Ranunculus.
Sage-leav'd Cyſtus with a purple Flower.
Sweet *Molly* of *Virginia*
The Tree Milkwort with blue and white Flowers.
Scarlet flower'd Horſe-Cheſnut of *Virginia*.
White flower'd Horſe-Cheſnut.
*Perſian* Lilly.
Double flower'd *Solomon*'s Seal.
Geraniums, ſeveral ſorts
*French* Marygolds.
Oranges.
The Aloe, call'd, by Dr. *Comelin*, *Aloe Africana humilis foliis ex albo & viridi variegatis*.
Collection of Hyacinths

## *Flowers blowing in* MAY, *beſides thoſe which continued Bloſſoming, that were mentioned in the foregoing Month.*

ORanges.
Lemons of ſeveral ſorts.
Pinks of various kinds.
Collection of Tulips.
Lilly of the Valley.
Two ſorts of *London* Pride.
Ranunculus of the *Perſian* Kind.
Double white Narciſſus.
Sea Narciſſus.
Fox Gloves.
Sweet *William*.
The Mule between the Sweet *William* and Carnation.
Colombines.
Several kinds of Thalictrums.
Double purple Perwinkle.
The Paſque Flower, purple and aſh Colour.
Arbor Judæ.
King's Spear.
Aloe-leav'd Aſphodel.
White-flower'd Tree Scabious.
Blue-flower'd Tree Scabious.
Roſemary-leav'd Buckthorn.
Citiſſus Lunatus.
Four ſorts of Corn-Flags.
Ciſtus, ſeveral ſorts.
Camomile.
Flag Iris, ſeveral ſorts.
Thrift or Sea Pink, ſeveral ſorts.
Rockets.
*Perſian* Jeſſamine.
Lylacs, three ſorts.
Peach-leav'd Bell Flower.
*Hungarian* Iris.
Laburnums, two ſorts.
Yellow Martagon.
Geranium, ſeveral ſorts, among which the ſweet Night ſmelling kind.
Double white Mountain Ranunculus.
*Eng.* Hyacinths, white, blue, and Peach-colour'd.
The double blue Harebell.

Male Peony.
Hyacinth of *Peru*, blue and white.
Blue Grape Hyacinth.
Atamaſco Lily.
Tradeſcant's Spiderwort.
The *Savoy* Spiderwort.
Fraxinella, white and red.
Blue feather'd Hyacinth.
Guilder Roſe.
Yellow Jeſſamine.
Blue *Monk*'s-Hood.
Double white and red Batchelors-Buttons.
Germander leav'd Chickweed.
*Greek* Valerian, white and blue.
*Virginian* Aſtragulus.
Bulboſe Iris.
*Roman* and fiery Lily.
Meum.
Syringa.
Widow-wale.
Honeyſuckles.
Tree Cinquefoil.
Day Lily.
Sweet Lilly-Aſphodil.
*French* Honeyſuckles.
Naſtertium Indicum.
*French* Marygold.
Lyſſimachia.
Lychnoides.
Valerian.
Double Featherſew.
Ficoides of two or three kinds.

## *Flowers for the Month of* JUNE.

Great Apocinum of *Virginia*.
White Wall-Flowers, and ſeveral other uncommon kinds.
The *Turkey* and ſweet Scabious, various kinds.
Aſh-colour and white-flower'd Tree Scabious.
Several kinds of Fox-Gloves.
Mules, two ſorts.
Candy-tuft-tree.
Sweet-Williams.
All the ſorts of Lilies of the Valley.
Sweet Lily Aſphodils, Day-Lily, the *Roman* and flaming Lily, and the white Lily ſtrip'd with Scarlet.

Sedums, ſeveral ſorts.
Great Variety of Daiſies.
Fine Ranuncula's.
Double-creeping Crow Foot.
Sea Daffadil.
Various kinds of Colombines.
Lady's Mantle.
Tree Spurge.
Onion-leav'd Aſphodil.
Aloe-leav'd Aſphodil.
Roſemary-leav'd Buckthorn.
Geraniums, ſeveral ſorts
Palma Chriſti.
Scorpion Senna, and Bladder Senna.
Convolvulus.
Scrophularia.
Blue-flower'd Geniſta.
Holy-Oaks.
Some Carnations.
Oranges and Lemons.
Roſes.
Four ſorts of Corn-Flags.
Small white-flower'd female Cyſtus, large Gum Cyſtus, and Dwarf yellow-flower'd Cyſtus.
Globe-flower'd Rockets, double and ſin-
White and purple Iris, ten ſorts of Flag Iris, Collection of Bulbous Iris.
Peach-leav'd Bell Flower.
White and blue *Canterbury* Bells.
Dwarf Bell-flower'd Tree.
Milkwort.
Nettle-leav'd Jeſſamine
Valerian, white and red, *Greek* Valerian.
White and blue Sea Pink.
Yellow Moly, ſweet ſcented Moly, *Indian* Serpents, and *Homer's* Moly.
Several ſorts of Hearts-Eaſe.
Great Blue-Bottle, *Savoy*.
Tradeſcant's Spiderworts.
Fraxinella, white and red.
Blue Monks-hood.
Blue-feather'd Hyacinth.
Double white and red Batchelors Buttons.
Germander, and Germander-leav'd Chickweed.
*Italian* Honeyſuckle.
*French* Honeyſuckles.
*Virginian* Aſtragalus.

Syringa.
*French* Willow.
*Turkey* Lichneſs, Tree Lichneſs.
Early white and red Honeyſuckles.
Tree Cinquefoil.
Dwarf Broom.
Moon-trefoil.
Lotus-tree.
*Spaniſh* Broom.
Yellow, white and red Yerrow.
Pomgranates.
Yellow, white, common and imperial Martagons.
Double white Mountain Ranunculus.
Calaminth.
Goats Rue, white and blue.
Double and ſingle ſcarlet Lichneſs.
Larks Spurs.
Horned Poppies, everliving, black, and other Poppies.
Sweet and everlaſting Peaſe.
White Jeſſamine.
Yellow *Indian* and *Spaniſh* ſingle and double Jeſſamine, yellow and *Virginia* Jeſſamine.
Maſtich-tree.
Three ſorts of Thrift.
*French* Sage.
Single and double Virgin's Bower.
*French* Bean-tree.
Spirea Frutex, and Curran-leav'd Spirea.
Double and ſingle-feather'd Campion.
Two ſorts of Ornithogalum.
Golden Rod.
Sir *George Wheeler's* Tutſon.
Mountain Scabious.
*Debtford* Pink.
Two ſorts of Limoniums.
Dwarf Mountain Milkwort.
Several ſorts of Ficoides.
Four ſorts of Tongue-leav'd Aloes.
Lichnoides.
*Virginian* Purple Sun Flower, Fennel-Flower.
Double and ſingle white and blue Throatworts.

## *Flowers for the Month of* JULY.

ORanges and Lemons.
Annual Stocks.
Aſh-colour and White-tree Scabious, ſweet-ſcented and mountain Scabious.
Collection of Carnations.
Two ſorts of Mules.
Sweet Williams.
Roman, Orange and Day-Lily.
Sedums, ſeveral ſorts.
Roſemary-leav'd Buckthorn.
Several ſorts of Roſes.
Peach-leav'd Bell-Flower, two ſorts, and Dwarf and Steeple Bell Flowers.
Double creeping Crowfoot.
Valerian, white and red, *Greek* Valerian, white and blue.
Four ſorts of Hearts-Eaſe.
Great Blue-bottle.
Tradeſcants Spiderwort.
Double white and red Batchelors Buttons.
*Virginian* Aſtragalus.
*French* Honeyſuckles.
*French* Willow.
Annual Lichneſs, Tree Lichneſs, and double and ſingle ſcarlet Lichneſs.
Lichnoides.
Liſymachia.
Tree Milkwort, ſmall Mountain Milkwort.
*Dutch*, late, red, and evergreen Honeyſuckle.
Tree Cinquefoil.
Yellow and red Yerrow.
*Spaniſh* Broom, white and yellow.
White, imperial, ſcarlet and *Virginian* Martagon.
Calaminth.
Three ſorts of Lavender.
White and blue Goats Rue.
Horned, ever-living, black and common Poppies.

Sweet Peaſe, ſcarlet and common.
Yellow, white, blue, and ſcarlet Lupines.
Colutea of *Æthiopia* and *Canada*.
White Jeſſamine.
*Virginian* yellow, common yellow, *Spaniſh* double and ſingle Jeſſamine.
Common Spirea, and Curran-leav'd Spirea.
Feather'd Campion, double and ſingle Roſe Campion.
Double and ſingle Virgins Bower.
Everlaſting Peaſe.
Starworts.
Golden Rod of ſeveral ſorts.
Spiked Speedwell.
Two ſorts of Limoniums.
Ficoides ſeveral ſorts.
Winter Cherry.
White flower'd Nightſhade-tree.
Capſicums.
Love Apples.
*French* Bean-tree.
Myrtles.
*African* and *French* Marygolds.
Amaranthus and Balſamines.
Four ſorts of Sun-Flowers.
White Helebore, with a black Flower.
Oliander-leav'd Tree Apocinum.
Four ſorts of Gnaphaliums.
Four ſorts of Olianders.
Scarlet and blue Cardinal Flowers.
White and yellow Mullen.
Red and white Orpin, and the ſmall ever-green ſort.
Fritilaria Craſſa, ſmall and great.
Two ſorts of Paſſion-Flowers.

## *Curious Flowers in* AUGUST *and* SEPTEMBER.

STock Gilly-Flowers, double and ſingle, white and red, purple and white.

Tree Scabius, Musk Scabius, and *Turkey* Scabius.

*Fairchild's* Mule.

Valerian, white and red.

Six ſorts of Viola Tricolor.

*Spaniſh* Broom.

*Virginia* Martagon.

Two ſorts of Goat Rue.

Horned Poppy.

*Spaniſh* Jeſſamine, ſingle and double, *Brazil* Jeſſamine, *Indian* yellow Jeſſamine, *Arabian* Jeſſamine, Ilex-leav'd Jeſſamine, and *Virginian* yellow Jeſſamine.

Linconium.

Several ſorts of Ficoides.

Aloes, ſeveral ſorts.

Corn Marygold, white and yellow.

Two ſorts of Anemone Spermos.

Amomum *Plinii*

White-flower'd Nightſhade.

Double and ſingle Virgin's Bower.

Double and ſingle flower'd Myrtle.

Five ſorts of Sun-Flowers.

Four ſorts of Gnaphaliums.

Holyoaks.

Four ſorts of Apocinums.

Campanula, two ſorts.

Oleanders, four ſorts.

Thorn Daiſie, ſcarlet and blue.

Cardinal Flowers.

Orpine, white and red.

Fritilaria-craſſa, two ſorts.

Paſſion Flowers, four ſorts.

Colchicums, ſeveral ſorts.

Cyclamens, two ſorts.

Trumpet Flower.

Sopewort.

Leonorus, two ſorts.
Arbutus.
*Guernſey* Lilly.
Bella Donna.
Starworts, ſeveral ſorts.
Geraniums, ſeveral ſorts.
Cotiledons, ſeveral ſorts.
Autumn Crocus.
Autumn Daiſie.
Tree Milkwort.
Aloe-leav'd Aſphodel.
True Saffron.
Onion-leav'd Aſphodel.
Viburnum.
Golden Rods, two ſorts.
Shrub Mallows, four ſorts.
Double Pinks, ſeveral ſorts.
Laurus-tinus.
Tamariſk.
Jalop.
Moon Trefoil.
Stacus, two ſorts.
Colutea.
Roſes.
Carnations, ſeveral ſorts.
Yellow Colchicum.
Candytuft-tree.
Grounſel-tree.
*Dutch* Honeyſuckle.
Barba Jovis.
Tenerum Bæticum.
Tradeſcants double Spiderwort.
Coma Aurea, two ſorts.
Platanus-leav'd Chriſanthemum.
*Roman* Wall-Flower.
Antirrhimum.
Roſe Campion, ſingle and double.
Throatwort, double, white and blue.
Tree Love-Apple, two ſorts.
Sampiere.
Polyanthus.
Auricula's.
The monthly Grape.
Several new ſorts of Annals.

## *Curious Flowers in* OCTOBER.

ASH-colour and white Tree Scabius.
Horn'd Poppy.
Double Stock Gilly-flowers.
*Spaniſh* Jeſſamine, double and ſingle, *Brazil* Jeſſamine, *Arabian* Jeſſamine, Nettle-leav'd Jeſſamine, and yellow *Indian* Jeſſamine.
Several ſorts of Ficoides.
Onion-leav'd Aſphodel, and Aloe-leav'd Aſphodel.
Two ſorts of Anemone Spermos.
Tree Chriſanthemum.
Myrtles, ſeveral ſorts.
Ten ſorts of Colchicums.
Four ſorts of Cyclamens.
Two ſorts of Leonurus.
True Saffron.
Arbutus.
*Guernſey* Lilly.
Bella Donna.
Autumn Crocus.
Tree Milkwort.
Scarlet flowering Geranium, with ſeveral other ſorts.
Chriſanthemum Tree from *Carolina*.
Mr. *Catesby's* new *Virginian* Starwort.
Pelitory of *Spain*.
Scarlet flowering Viaburnum.
Black flowering Lotus.
Coma Aurea.
Tree Lychnes.
Purple flowering everlaſting Kidney-Bean.
Old Man's Head Pinks.
New ſort of Barba Jovis.
Limonium.
Laurus-tinus, ſeveral ſorts.
Colutea.
Aizoid Tythimals.
Roſes.
Moon-trefoile.
Scarlet flowering Cotildon.
Paſſion Flower.
Carnations.
Fennel-leav'd Tree Scabius.

Curious

## *Curious Flowers in* NOVEMBER.

Spaniſh Jeſſamine, double and ſingle.
Yellow *Indian* Jeſſamine, and *Azores* Jeſſamine.
Double Stock Gillyflowers of ſeveral Colours.
Nettle-leav'd Jeſſamine
Aloes of ſeveral ſorts.
Ficoides of ſeveral ſorts.
Sedums of ſeveral ſorts.
Aloe-leav'd Aſphodil.
Onion-leav'd Aſphodil.
Chriſanthemum Creticum, white and yellow.
Leonurus, two ſorts.
Scarlet flower'd Geranium, with ſeveral other ſorts.
*Venetian* Vetch.
Mr. *Catesby*'s fine blue Starwort.
Colutea.
Tree Milkwort.
Coma Aurea.
Everlaſting Kidney-Bean.
Black flowering Lotus.
Pelitory of *Spain*.
Scabius of ſeveral ſorts.
Paſſion-tree in Fruit.
Carnations.
Senſitive Plant in Flower.
Polyanthus.

## *Curious Flowers in* DECEMBER.

Double Stock Gillyflowers, of various kinds.
Senſitive Plants in Flower.
Carnations.
Tulips.
Polianthus.
Hyacinths.
*Spaniſh* Jeſſamine, *Indian* Jeſſamine, *Azores* Jeſſamine, and Nettle-leav'd Jeſſamine.
Cyclamens.
Geraniums, ſeveral ſorts
Ficoides, of ſeveral ſorts

Aloes of ſeveral ſorts.
New ſort of Barba Jovis.
Old Man's Head Pink.
*Venetian* Vetch.
Sweet-ſcented Cyclamen.
Laurus-tinus, ſeveral ſorts.
Candy-tuft-tree.
Mr. *Catesby*'s fine blue Starwort.
*Glaſtenbury* Thorn.

## *Curious Flowers in* JANUARY.

Black Helebore, with white Flowers.
Helebore, with green Flowers.
Winter Aconite.
Mezereon.
Snow Drops, double and ſingle.
Candy-tuft-tree.
Laurus-tinus, ſeveral ſorts.
Blue Star Hyacinth.
Paſſetout.
Spring Cyclamen, and ſweet-ſcented Cyclamen.
*Canary* Campanula.
Polyanthus.
Wall Flowers.
Tulips.
Anemones.
*Glaſtenbury* Thorn.
New ſort of Barba Jovis.
*Venetian* Vetch.
Auricula's.
Carnations.
Kidney-Bean Tree.

## *Curious Flowers in* FEBRUARY.

Spurge Laurel.
Mezereon.
Snow Drops, double and ſingle.
Double Stocks of ſeveral Colours.
Black Helebore, with a white Flower, and Helebore with a green Flower.
Tulips.
Hyacinths.

Radix Cava.
Double and ſingle white and yellow Wall-Flowers.
Polyanthus.
Miſleto.
*Canary* Campanula.
Spring Colchicum.
Sweet-ſcented and Spring Cyclamens.
Narciſſus of *Conſtantinople*, and Narciſſus of *Naples*.
Winter Aconite.
Twenty ſorts of Crocus.
Collection of Hyacinths.
Auricula's.
Polyanthus.
Carnations.
White and red Mezereons.
*Perſian* Iris.
Double Primroſe.
*Venetian* Vetch.
Cornelian Cherry.
Dens Caninus.
*Yorkſhire*-Sedum.
Muſcary Hyacinth, Aſh Colour and white.
Periwinkle, white and blue.
Forty ſorts of Narciſſus.
Hepaticas.
Dwarf Almond.
Fritilaries.
Oranges.
Ananas's, or Pine-Apple Fruit begins to appear.

## *Curious Flowers in* MARCH.

Stock Gilliflowers, double, of ſeveral kinds.
Wall-Flowers, double, white, and red.
Thirty ſorts of early Tulips.
Laurus-tinus.
Oranges.
Candy-tuft-tree.
*Yorkſhire* Sedum.
Black Helebore with a white Flower, and black Helebore with a green Flower.
Polyanthus.
Double Primroſes.
Twenty ſorts of Crocus.
Single white Hepatica.

Double and ſingle blue and peach-colour Hepatica.
Hyacinths.
Spring Colchicum.
Four ſorts of Spring Cyclamen.
Four ſorts of Narciſſus.
Cornelian Cherry.
Star of *Naples*.
Ranunculus.
*Dens caninus*.
Fumetory.
Violets ſingle and double, white and blue.
Fennel-leav'd Helebore.
Radix cava.
Periwinkle, white and blue, and double purple.
Dwarf *Hungary* Honeyſuckle.
Aſſarabacca of *Virginia*.
Petaſites.
Male Mandrake.
Dwarf Medlar.
Dwarf Flag Iris.
*Venetian* Vetch.
Nettle-leav'd Jeſſamine.
Thirty ſorts of Fritilaries.
Dwarf Almond.
Fruit bearing Almond.
Simblaria.
Miſleto.
Bulbous Iris.
Double-bloſſom Peach.
Anemones.
Monthly Roſe.
Jonquils.
Double-bloſſom Pear, double-bloſſom Cherry, and double-bloſſom Almond.
Arbor Judæ.

## *A Catalogue of the Grapes in Mr.* Fairchild*'s Garden at* Hoxton *both for Eating and the Vineyard, by the Names that they are called in* England.

White Sweetwater.
Black Sweetwater.
Black *July*.
White Muſcadine.
Black Muſcadine.
Royal Muſcadine.
Amber Muſcadine.
White Chaſſalaſs.
Black Chaſſalaſs.
Black Cluſter.
Black Curran.

The Curran of *Zant*.
The *Corinthian* Curran.
Narbois, or *French* Sweetwater.
Chianti.
Blue *Burgandy*.
Manier, or Miller Grape
White Morillion.
Black Morillion.
White Malvoizie.
Black Malvoizie, excellent.
Red Malvoizie.
Variegated Grape.
Parſley-leav'd Grape.
*Bourdeaux* Claret-grape.
*Greek* Grape.
White Frontigniac.
Blue Frontigniac.
Yellow Frontigniac.
Grizel Frontigniac.
Black Frontigniac.
White Muſcatelle.
Black Muſcatelle, excellent.
Fox Grape.
St. *Peter's* Grape.
White Raiſin.
Blue Raiſin.
Red Raiſin.
Bourlac.
Lambordie, or large Brick Grape.
Red *Hamburgh*, excellent.
Blue *Hamburgh*, excellent.
White Grizline.
Matchleſs.
Heſperion.
Palm *Canary*.
Le Teinturier, the Dyer's Grape.
Black *Burgundy*.
Black Moreſtella.
Balance of *Valencia*.

He has ſeveral more ſorts, but I have not yet ſeen them bear.

## CHAP. XII.

### *Some Obſervations and Conſiderations upon the dry Summer, in the Year 1723, and of Watering, and its Uſe.*

THE Summer of the Year 1723 has been ſo remarkable for its extraordinary Drineſs, that I think it very neceſſary to give my Reader ſome Memorandums which I have made concerning it; for as there has not been in the Memory of Man any thing like it, ſo its Conſequences too are as novel to us; which, to be well conſider'd, will very much help our Thoughts in many Affairs, relating to Gardening and Husbandry.

In the firſt Place, I obſerve, that many Miles about *London*, there was not any Rain fell from *January* to the end of *June*, that was ſufficient to moiſten the Earth an Inch deep; the little that did fall did hardly ſo much Service as the Dew which generally falls in a Night in the Month of *May*; and the Months of *February* and *March* were ſo hot and dry, that in many of the ſtiff Lands the Husbandmen could not plow for Barley, but were forc'd to leave their Ground untill'd till the Rains fell in *July*, the time of ſowing Turnips.

There was very little Graſs, unleſs it was in ſuch Grounds as fortunately lay near the River *Thames*, and were overflow'd by it at the high Spring Tides. Every particular of the Gardens, which depended only upon the natural Ground, ripen'd their Fruits above three Weeks before their uſual time. Aſparagus was cut upon the natural Beds, about the tenth of *March*, and it was common to ſee Cherries ripe upon common Walls at the End of *April*; and Strawberries were brought to the Markets the firſt Week in *May*: Peaſe and Beans were ſold at cheap Rates, about the eighth and tenth of *May*, and were all clear'd and cut up by the beginning of *June*, which us'd to be the time when the plentiful Crops us'd to come firſt to the Markets: Grapes were in bloſſom in Mr. *Fairchild*'s Garden the twentieth Day of *May*, and the *July* Grape, ſweet Waters, and ſome others of the forward kinds, were all ripe and gather'd before *July* was out; I mean ſuch as were againſt South Walls; and then his great Variety of other ſorts, which us'd to begin to ripen about the middle of *September*, were ripe and gone about the middle of *Auguſt*. The Grapes this Year were perfectly good; but beſides Grapes, Melons, Mulberries, Apples and Pears, we have not had any Fruit worth eating this Year. The Cherries were extreamly ſmall and ill-taſted, but Abundance of them; and ſo Peaches, Nectarines and Abricots, which were this Year every where in vaſt Abundance, had their Fleſh tough, and their Juices ſour, though they had all the Characteriſticks of full Ripeneſs; the Trees were ſo loaded with them, that they were ſold by the laſt Retailers, about the Streets, for three half

Pence and two Pence *per* Dozen. The Badneſs of this ſort of Fruit was partly owing to the over-abundant Crop, which requir'd more Juices to feed them and fill their Veſſels, than the Tree could have drawn from the Earth, if there had been a ſufficient Quantity of Rain fallen; but as there was none at all during the Time of their Growth, ſo they ſtill were the greater Sufferers: The Veſſels which compoſe the Fruit, had not above a third Part of the Juices in them which the Fruit requir'd to fill them, and render it as large as it ought to be; and therefore it was impoſſible ſuch Juices could be ſo well digeſted, as if the Veſſels had been full, to have defended themſelves from being dried or baked by the Sun. Indeed, in one or two Places, where ſome few Peach-trees happen'd to be ſhaded, and water'd with Skill, I ſaw ſome tolerable good Fruit; but then the Trees had but a moderate Share of Fruit upon them; and ſo in ſeveral Places, that where the Fruit came the neareſt to its natural Size, there it came the neareſt to its natural Flavour.

I obſerv'd likewiſe, that the Drought was ſo violent this Summer, as even to make large Trees, that had been planted many Years, appear as if they were dying and paſt Recovery; and, I much fear'd, that hardly a Peach-tree would have been ſav'd, notwithſtanding, I obſerv'd, they were generally water'd. But the Waterings that I ſaw were cloſe to the Stems of the Trees, which can be of very little Benefit; for the Roots which feed a Tree, lye always the moſt remote from the Stem of the Tree; they are the ſmall Fibres of the Roots only which receive the Nouriſhment, and it is them which ſhould be water'd when a Tree has Occaſion for it. But then we are to conſider again, that in an extraordinary Drought, when the Plants require watering, the Sun is always hot and ſcorching, and exhales the Water which we apply to the Roots, before the Tree or Plant can get any conſiderable Nouriſhment from it; and in ſuch Seaſons, an Hour's Sun will go near to leave a Plant as dry as it was before watering. Now where theſe ſudden Changes happen to Plants, not only Reaſon, but Experience teaches us that they will not thrive, but even are ſometimes loſt, and often drop their Leaves; it is therefore I would adviſe the ſhading of ſuch Fruit-trees, as are the moſt warmly expos'd, during the violent Heat of the Day, and not only that Part of the Tree which is above Ground; but that part of the Ground likewiſe where are its fibrous Roots, ſo may the Waterings we give our Trees be more uſeful, by keeping the Ground about the Tree moiſt for a conſiderable time; and I find, likewiſe, that the larger the Plat of Ground is that is water'd, ſo much the better do the Plants thrive that are about it, the Vapour riſing from it moiſtening the Air, and that moiſt Air is imbib'd by the porous Part of the Plants, and nouriſhes them and their Fruits almoſt as much as their Roots; for this Reaſon, likewiſe, I find it has been ſucceſsful to waſh the Trees about the Evening with an Hand-Engine.

But to return to my Obſervations of this extraordinary Year. The Collections of Auricula's were in the Height of their Bloom at the End of *March*; and at the End of *April* the Collections of Tulips were out of Flower, both which Flowers bloſſom'd ſooner by a Month than uſual; ſo likewiſe the Hawthorn, whoſe Flowers us'd to be rare enough at *May* Day, were bloſſom'd, and all gone long before that time.

This dry hot Seaſon had likewiſe another extraordinary Effect in producing prodigious Numbers of Inſects, ſuch as Chafers, Ladycows, Waſps, *&c.* the firſt were in ſuch great Flight about *Marybone*, that it was very troubleſome walking thereabouts; and for the Ladycows, there were ſuch vaſt Numbers of them in St. *James*'s Park, that the Ground was almoſt cover'd with them; nor were they much leſs numerous in many of the Streets of *Weſtminſter*, and ſeveral Places in *London*. About *Acton* the Waſps were ſo numerous, and had ſo many Neſts in the common Fields, that the Farmers could not plow for them, till they were partly deſtroy'd by the violent Rains that fell in *July*, before the End of which Month moſt of the Wheat about *London* was got in, and was extraordinary good, though the Straw was ſhort.

At the beginning of *Auguſt* I obſerv'd the Katkins upon the Arbele, and upon the Hazle, and ſome likewiſe were as remarkable upon the black Sallow. I may take Notice that this Summer alſo, there were hardly any Kidney-Beans to be had; and that the Seaſon was ſo bad for Cabbages, that in *July* they were ſold for one Shilling, and for one Shilling and ſix Pence a-piece; there were very few but what were made by rolling or tying up.

In *Auguſt* alſo ſeveral Pear-trees and Apple-trees were in full Bloom, which, I ſuppoſe, was the Effect of the extraordinary Drought, and it may not be amiſs to obſerve, that one Way to make Trees bloſſom in Autumn, is to keep them as dry as poſſible in Summer, and to top the young Shoots about the End of *May*; by this Means they may be diſpos'd to bloſſom in Autumn, and bring Fruit about *December*, if they have good Frames to cover them. From the foregoing Remarks, I conclude, that the Seaſons were this Year a Month forwarder than uſual; and for that Reaſon I expect that all our Winter Pears will be this Year as good as they generally are in *France*.

*FINIS.*

UNIV. OF MICHIGAN